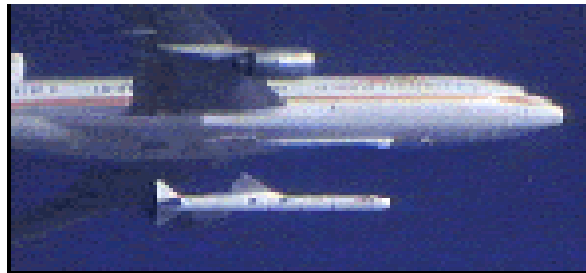




John F. Kennedy Space Center

LAUNCH SERVICES PROGRAM



Pardon the Interruption Meeting September 2008



September 18, 2008

LSP Internal Use Only



John F. Kennedy Space Center

OCO Project Summary

OVERALL MISSION

Jul	Aug	Sep
Y	Y	Y

LAUNCH SERVICES PROGRAM

Mission	OCO
Launch Date	2009/1/15
Launch Vehicle	Taurus
Launch Period Window	TBD
PPF	ASO-VAFB



MISSION MANAGEMENT

	Jul	Aug	Sep
Observatory Status	G	G	G
Manifest/Range	G	G	G
Integrated Schedule	G	G	G
ICD	G	G	G
CDRLs (S/C & LSC)	G	G	G

LAUNCH SITE

	Jul	Aug	Sep
LSSP	G	0	G
Customer Inputs	Y	0	G
PPF	G	0	G
Launch Site Unique	G	0	G
Spacecraft OPS	G	0	G

SAFETY & MISSION ASSURANCE

	Jul	Aug	Sep
Mission Assurance	G	0	G
Safety	G	0	G
Quality	Y	0	Y
Reliability	G	0	G

ENGINEERING

	Jul	Aug	Sep
Launch Vehicle	G	G	G
Mission Specific	G	G	G
Certification	Y	Y	Y
Mission Analysis	G	G	G
ERS/ERB	G	G	G
Launch PAD/GSE	G	G	G
Mission Unique IV&V	N/A	N/A	N/A

COMM & TELEMETRY

	Jul	Aug	Sep
Communications	G	0	G
Telemetry	0	0	0

BUSINESS

	Jul	Aug	Sep
Budget	G	G	G
Contracts	G	G	0

LEGEND

Proceeding on Plan
 Area of Concern
 Significant Problem
 Not Evaluated
 Not Applicable

G
Y
R
0
N/A

DOWNRANGE TELEMETRY

	Jul	Aug	Sep
Ground Stations	0	G	G
Deployables	0	0	0
P-3/OTTR	0	Y	Y

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified



OCO - Open/Accepted Risks

LAUNCH SERVICES PROGRAM

		Condition
RYG Trend	RiskID	Consequence
G	M0264	The OCO and Glory payload fairing (PLF) production schedules are ahead of the Ballast Ring Mission Unique design reviews. The outcome of the ballast ring design process impacts the location of the PLF doors. (P=2, I=2)
		If the Ballast Ring design changes as an outcome of the design review process the OCO and Glory PLF cutouts (as defined in the MICD change) may not be located in the correct position to support S/C access after PLF installation. Or, if the MICD is not approved by NASA, cost and schedule of PLF manufacturing may be impacted. Status: MUSAR completed; Risk in closure.
G	M0281	Contingency Fuel Off-load; If an OCO S/C N2H4 fuel tank leak were to occur, complete off-load of the fuel cannot be done while the S/C is horizontal or while stacked on the launch vehicle. (P=1, I=3)
		Launch delay due to resulting defueling plan execution and subsequent leak repair. Status: AW PSWG and Range Safety to approve Plan and waive Range Safety requirement.
Y	V0058	Taurus XL Certification Schedule may not meet the OCO launch date. (P=2, I=5) OCO launch date delayed.
Y	V0059	Qual by analysis on Taurus 63-in fwd fairing hinges show negative strength margin. (P=3, I=5) Hinge failure results in loss of mission.
Y	V0060	Taurus XL - Stg 1 Electronic Control Unit (ECU) was not thermally qual'd or ATP'd and could overheat. (P=2, I=5) Failure of ECU results in loss of mission.

P
R
C
B

C
F

C
C
C
U
R
R
E
N
C
E

5
91-100%
4
51-90%
3
11-50%
2
6-10%
1
1-5%



1 2 3 4 5
IMPACT

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

Y	V0062	Taurus conducted ripple emissions environment has unknown margin. (P=2, I=5)
		Degraded flight hardware operations or loss of mission.
Y	V0063	Taurus Stg-0 TVC Actuator not qualified for dynamic environment or accepted for sine vibe environment. (P=3, I=5)
		Failure of Stg-0 TVA causes loss of mission.
Y	V0064	Timeline to provide qualification test plan (QTP) is unknown. (P=2, I=5)
		Delayed test completion would cause delayed Taurus Certification and delayed launch.



John F. Kennedy Space Center

OCO - Significant Events

LAUNCH SERVICES PROGRAM

Accomplished	
PCLA	1/23/07
Bus CDR	02/15/2006-02/16/2006
MICD released	01/11/2007
Mission CDR	08/21/2006-08/24/2006
EICD released	01/23/2007
TFA	01/25/2007
Mission ICD released	04/12/2007
T8/T9 Ballast Ring MUCDR	1/31/08
PMA	9/20/07
GOWG at VAFB	02/05/2008-02/07/2008
T8/T9 MUSAR	8/28/08
Softride Isolator CDR	12/11/2007
Softride Isolator CDR/ERB Reconvene	3/14/2008-03/14/2008
OCO PPF awarded	01/07/2008
ITA	8/9/07
Sep Analysis	8/7/07
Comprehensive Mission Unique Review. SOW submitted to LSG.	03/26/2008-06/13/2008
Mission ICD Update, Rev A	4/4/08
MICD Update, Rev A	4/1/2008
EICD Update, Rev A	2/26/08
OCO Systems Level Design Review	07/30/2008-07/31/2008
Fit Check and Shock Test	06/13/2008-06/15/2008
LOWG	08/27/2008

Planned	
CLA	10/01/2008
FMA	10/10/2008
RF Link Analysis	10/14/08
Flight Controls Analysis	10/14/08

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified



John F. Kennedy Space Center

OCO Mission Management

Dave Breedlove

LAUNCH SERVICES PROGRAM

Mission

Launch Date

Orbit Requirement

Launch Vehicle Class

Launch Period Window

PPF

Mass (kg)

PAD

OCO
2009/1/15
705 km / 98.2 deg incl
Taurus
TBD
ASO-VAFB
444 kg (TB
567E

Observatory Status

Observatory Status

Schedule

Budget

Deliverables

Testing

ATLO

Instrument

Jul Aug Sep

G	G	G
G	G	G
G	G	G
G	G	G
G	G	G
G	G	G
G	G	G

Mission Center:

Program:

PM

LVI

MM

IE

LSIM

PIM

MAM

MCE

MTE

JPL

ESSP

Tom Livermore

Mike Davis

Dave Breedlove

Jim Hoffman

Julie Schneringer

Ken Carr

Laura McDaniel

Ralph Mikulas

Nathan Wood



Jul Aug Sep

ICD

G	G	G
---	---	---

Launch Vehicle Status

Integrated Schedule

CDRLs (S/C & LSC)

Manifest/Range

Ground Stations

Deployables

P-3/OTTR

G	G	G
G	G	G
G	G	G
0	G	G
0	0	0
0	Y	Y

SIGNED SCNS:

SCN #	DATE SIGNED
ICP-01, EICD	02/13/2007
ICP-02, EICD	02/13/2007
ICP-003, MICD	08/14/2007
ICP-001, MICD	9/10/07

There are no SCNs in Review

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

ICP-002, MICD	8/28/07
ICP-03, EICD	1/29/08
ICP-4, MICD	1/29/08
ICP-12, Mission ICD	9/12/08
ICP-13, Mission ICD	6/4/08
ICP-005, MICD	6/4/08
ICP-04, EICD	6/4/08
ICP-15, Mission ICD	8/21/08
ICP-16, Mission ICD	8/21/08



John F. Kennedy Space Center

OCO - Engineering

Jim Hoffman

LAUNCH SERVICES PROGRAM

	Jul	Aug	Sep
Launch Vehicle	G	G	G
Payload Fairing	G	G	G
First Stage	G	G	G
Second Stage	G	G	G
Third Stage	G	G	G
Payload Attach Fitting	G	G	G
Other	G	G	G
Mission Specific	G	G	G
Certification	Y	Y	Y
Mission Analysis	G	G	G
ERS/ERB	G	G	G
Launch PAD/GSE	G	G	G
Mission Unique IV&V	N/A	N/A	N/A

REQUIREMENT VERIFICATION STATUS	
NUMBER OF REQUIREMENTS	181
VERIFIED TO DATE	32

LAUNCH PAD / GSE MODS (IF APPLICABLE)
Umbilical Harness Mod
GSE Payload Fairing Doors

MISSION UNIQUE STUDIES (IF APPLICABLE)
There are none.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified



John F. Kennedy Space Center

OCO - Mission ERB Status

Jim Hoffman

LAUNCH SERVICES PROGRAM

R/Y/G	ERS #	TITLE	ERB Req?		Board Held?			Closure		
			Y	N	Y	N	N/A	AI	ENG.	OCE
G	06-314	OCO ICD Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	06-328	OCO Umbilical Harness Modification	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	07-189	Taurus T8/T9 MUPDR (Ballast Ring)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
G	07-190	Taurus T8/T9 MUCDR (Ballast Ring)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
G	07-191	Taurus T8/T9 MUSAR (Ballast Ring)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
G	07-302	T-0 Purge for Glory & OCO Missions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	07-173	Taurus T8/T9 Softride Isolators	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
G	08-150	OCO & Glory MU Sys-Lvl Design Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified



John F. Kennedy Space Center

OCO - Vehicle ERB Status

Jim Hoffman

LAUNCH SERVICES PROGRAM

R/Y/G	ERS #	TITLE	ERB Req?		Board Held?			Closure		
			Y	N	Y	N	N/A	AI	ENG.	OCE
G	07-325	Taurus XL Core Fleet: Coupled Loads IV&V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	07-328	Taurus XL Core Fleet : 7Ah Avionics Battery, Taurus First Flight, OCO/Glory	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	08-14	Taurus XL Core Fleet: Taurus XL Upper stage Thermodynamics IV&V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	07-361	Hot Gas Generator Addition of Debris Catcher (fairing sep, TB first flight)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	08-12	Taur Peg XL Core Fleet: Marotta Regulator Oscillations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	08-151	NTS Santa Clarita Pyroshock Testing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	08-139	Taurus XL Stg-2 Inclination Targeting	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

10



John F. Kennedy Space Center

OCO - Launch Site

Julie Schneringer

LAUNCH SERVICES PROGRAM

LSSP

Jul Aug Sep

G	0	G
---	---	---

LSSP	Planned	Released
Preliminary	07/2007	08/27/2007
Baseline	08/01/2008	09/09/2008

CUSTOMER INPUTS

Jul Aug Sep

Y	0	G
---	---	---

DELIVERABLES

Jul Aug Sep

Security and Badging	G	0	G
Training and Personnel Cert	G	0	G
Contingency Plans	G	0	G
Safety LSIM	G	0	Y
Radiation Control	G	0	G
Operational Plans	G	0	G

UNIQUE REQUIREMENTS

LAUNCH SITE UNIQUE

Jul Aug Sep

G	0	G
G	0	G

PPF

Commercial PPF

G	0	G
G	0	G

Spacecraft OPS

Fueling

G	0	G
G	0	G

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

11



John F. Kennedy Space Center

OCO Budget Breakdown

Ken Carr

LAUNCH SERVICES PROGRAM

The launch service budget includes:

* **Launch Services**

- Standard launch Vehicle Services provided by this contract. This line item is firm fixed price and has no flexibility.
-
-

* **Mission Uniques**

- Requirements necessary to customize basic vehicle hardware to meet unique s/c driven requirements.
- Other services directly attributable to the mission.
- Contains some flexibility except when technical risk is affected. Spacecraft requirements are the cost driver.

* **Integrated Services**

- LSP contractor support service (ELVIS, CAPPs, JBOSC, KICs, etc).
- USAF range costs attributable to the mission
- Limited flexibility

* **Payload Processing Facility**

- Government facility: spacecraft customers are required to be processed in a government facility if the mission is planetary or has nuclear requirements
- Commercial facility: all other missions have been directed to process in a commercial facility;
- Contains some budget flexibility. Additional spacecraft cleanliness requirements or hazardous requirements may increase PPF costs.

* **Telemetry**

- Assets required to meet minimum launch vehicle telemetry requirements.
- Includes fixed and deployable ground stations, instrumented aircraft, and ocean assets.
- Limited flexibility requirements are often set late in the integration cycle.

* **Fly Out**

- Costs that each mission in the 19-Pack must incur.
- Long lead material procurement to mitigate risks due to gaps in production and supplier orders.
- Post-production support for labor skill retention, procure, manufacture, store and maintain under configuration control, mission critical spare parts.
- Pad Sustainability costs for SLC-2 and SLC-17.
- No flexibility-contract costs

* **Nuclear**

- RTG/RHU processing
- RTG/RHU databooks and approval
- Limited flexibility

* **Reimbursable**

- Reimbursable FC for transportation, labor, and CMO.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

^a **Mission Flexibility**

- Portion of the mission budget available for funding additional task assignments, non-standard services or meeting unexpected requirements.



John F. Kennedy Space Center

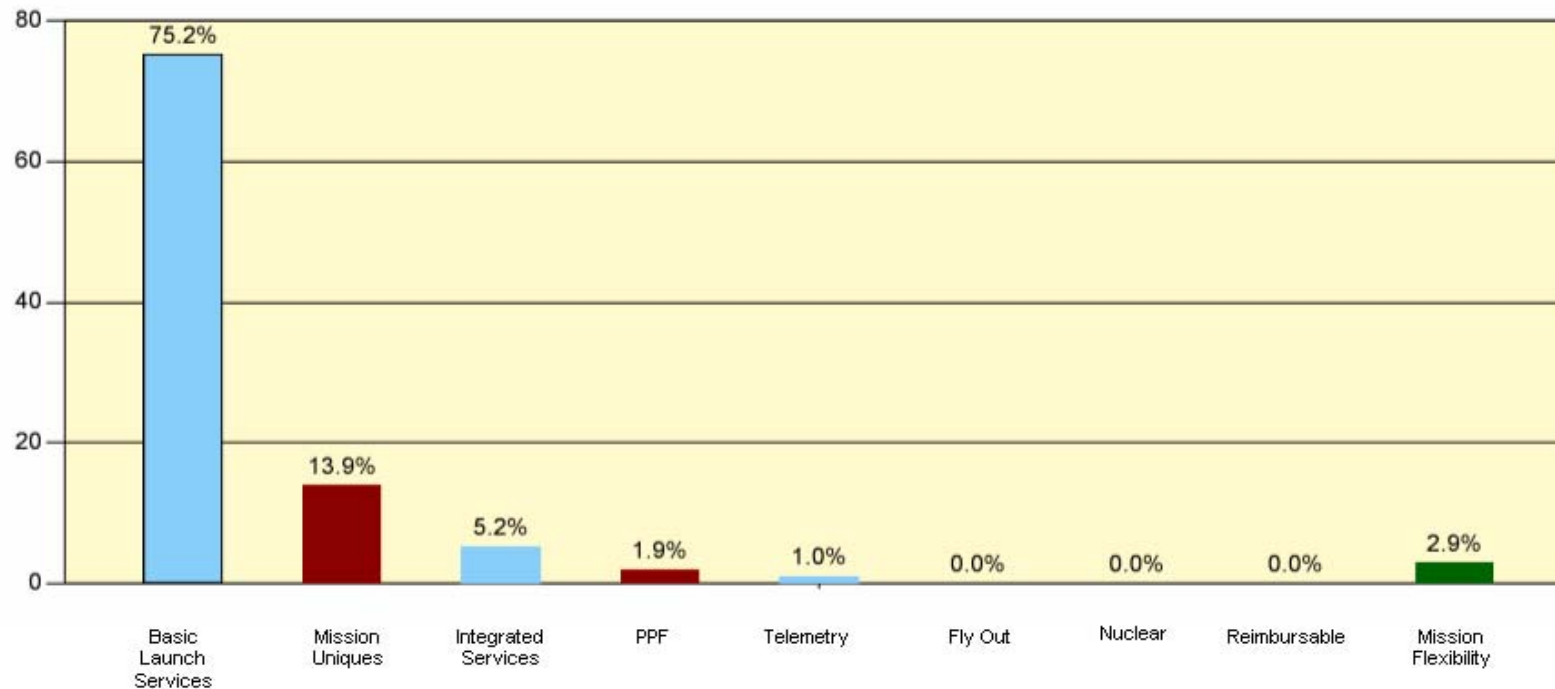
Launch Services Budget Breakdown

OCO Mission

Ken Carr

LAUNCH SERVICES PROGRAM

% of Total Launch Service Cost - 9 / 2008



- No flexibility; cost are fixed
- Limited Flexibility depending on spacecraft requirements
- Flexible portion of budget

Notes:

No variance since last report.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

14



John F. Kennedy Space Center

OCO - Business

Ken Carr

LAUNCH SERVICES PROGRAM

Budget

Contracts

Jul	Aug	Sep
G	G	G
G	G	0

Milestone	Date
Milestone 1A	11/15/2003
Milestone 1B	11/15/2004
Milestone 1C	11/15/2004
Milestone 1D	8/1/2005
Milestone 2A	10/15/2005
Milestone 2B	11/15/2005
Milestone 2C	02/15/2006
Milestone 2D	02/15/2006
Milestone 2E	10/15/2006
Milestone 3A	11/15/2006
Milestone 3B	11/15/2006
Milestone 4	04/15/2007
Milestone 5	08/15/2007
Milestone 6	06/15/2008
Milestone 7	09/15/2008
Milestone 8	11/15/2008
Milestone 9	02/15/2009

<input type="checkbox"/>	Open Milestone Payment
<input type="checkbox"/>	Paid Milestone

Contract Status		
Launch Services		
Contract Mod	Number	Description
	Mod 10	Launch delay from 08/13/2007 - 09/15/2008 and Softride addition
	Mod 17	Test Payload Adapter Fitting support

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

15

Contract Mod	Number	Description		
	Mod 24	Addition of non-standard services: Umbilical harness,Test Isolators & Instrument Purge		
	Mod 31	Ballast Ring for launch vehicle		
	Mod 34	Isolator Delta Qual Testing		
	Mod 36	Launch Delay from 9/15/08 to 12/15/08		
	Mod 42	FCDC Rework		
There are no LD Contract Mods				
Task Assignments	Number	Description	Completion Date	Invoice Paid Date
	SP-24.001	Soft-Ride coupled loads analysis using XL environment	12/23/2005	
	SP-24.002	Upper stage motor production hold (non-mission funds)	10/7/2005	
	SP-24.003	RF/EMI compatibility study	12/15/2006	
	SP-24.004	Payload CDR Support	8/31/2006	
	SP-24.005	Umbilical connector test support	4/6/2007	
	SP-24.006	Trajectory Feasibility Study	2/28/2007	
	SP-24.007	OCO Environmental Test Support	Active	
	SP-24.008	Contingency Faring Doors	Active	
	SP-24.009	LEV Power Mod	Active	
	SP-24.010	Taurus XL System Level Design Review	Active	
Contract Mod (PPF)	Number	Description		
	NNK07LA79B	OCO Payload Processing Facility Task Order		
There are no Other Contract Mods				
	Issues			
0	Launch Delay Rate increase at L-180 days to \$12K/day - 30 days of grace remain			



John F. Kennedy Space
Center

OCO - Safety and Mission Assurance

Laura McDaniel

LAUNCH SERVICES PROGRAM

Assurance Verification Areas	Status		Evidence of Completion	Jul	Aug	Sep
	Complete	In Work				
Quality				Y	0	Y
Software / Hardware Problems	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The Taurus vehicle is under certification efforts by LS SMA and NASA LSP. Due to outstanding Data Requests for Taurus vendors from previous site visits, all hardware and software fabrication operations are not fully certified	Y	0	Y
Alerts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues	G	0	G
Audits/Inspections/Surveillances	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SMA continuing to follow the closure of the MDA audit findings against Pac Sci	Y	0	Y
Limited Life Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues	G	0	G
Reliability				G	0	G
FMEA/Fishbones/Equivalent	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Issues	G	0	G
Reliability Assessments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Issues	G	0	G
Safety				G	0	G
Requirements Definitions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Issues	G	0	G
Range Safety & Mission Flight Rules	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Issues	G	0	G
Licenses/Use Authorizations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	RF Use Authorization in work	G	0	G
Safety Documentation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Expect final MSPSP to be delivered early September	G	0	G
Non-compliances	<input type="checkbox"/>	<input checked="" type="checkbox"/>	S/C: ELS submitted for hydrazine propellant tank burst test issue; Range Safety Waiver to be written for spacecraft contingency offload; SMA input added to ELV Risk M0281 for OCO & Glory (Taurus)	G	0	G
Contingency Planning	<input type="checkbox"/>	<input checked="" type="checkbox"/>	OCO Contingency Off-load Plan being drafted	G	0	G
Mission Assurance				G	0	G
Lessons Learned	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No previous NASA Taurus missions - Other KSC LLs will be reviews/addressed	G	0	G
First Flight/Mission Unique items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Certification Effort in work	G	0	G
Test/Qualification/Certification	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Certification Effort in work	G	0	G
Mission Assurance Assessments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues	G	0	G
Risk Management	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Risk Management System is working properly	G	0	G

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

17



John F. Kennedy Space Center

OCO Comm & Telemetry

Ralph Mikulas and Nathan Wood

LAUNCH SERVICES PROGRAM

Communications

Voice Comm
Data Comm
Networks
Video Comm
Timing
RF Comm
LSSP Comm Annex

Jul	Aug	Sep
G	0	G
G	0	G
G	0	G
G	0	G
G	0	G
G	0	G
G	0	G
G	0	G

Telemetry

Decommuration Tables
Data Integrity Test
Software Lockdown
Software Inventory
Console Configuration
Console Checkout

Jul	Aug	Sep
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

18



John F. Kennedy Space Center

Kepler Project Summary

OVERALL MISSION

Jul	Aug	Sep
Y	Y	Y

LAUNCH SERVICES PROGRAM



Mission	Kepler
Launch Date	2009/04/10
Launch Vehicle	Delta II
Launch Period Window	
PPF	Commercial PPF

MISSION MANAGEMENT

	Jul	Aug	Sep
Observatory Status	G	G	G
Manifest/Range	Y	Y	Y
Integrated Schedule	G	G	G
ICD	G	G	G
CDRLs (S/C & LSC)	G	G	G

LAUNCH SITE

	Jul	Aug	Sep
LSSP	G	G	G
Customer Inputs	G	G	G
PPF	G	G	G
Launch Site Unique	G	G	G
Spacecraft OPS	0	0	0

SAFETY & MISSION ASSURANCE

	Jul	Aug	Sep
Mission Assurance	Y	Y	Y
Safety	G	G	G
Quality	Y	Y	Y
Reliability	G	G	G

ENGINEERING

Launch Vehicle	G	G	0
Mission Specific	G	G	0
Certification	N/A	N/A	0
Mission Analysis	G	G	0
ERS/ERB	G	G	0
Launch PAD/GSE	G	G	0
Mission Unique IV&V	0	N/A	0

COMM & TELEMETRY

Communications	G	G	G
Telemetry	0	0	0

BUSINESS

Budget	G	G	G
Contracts	G	G	G

LEGEND

Proceeding on Plan
Area of Concern
Significant Problem
Not Evaluated
Not Applicable

G
Y
R
0
N/A

DOWNRANGE TELEMETRY

Ground Stations	0	G	G
Deployables	0	G	G
P-3/OTTR	0	N/A	N/A

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

19

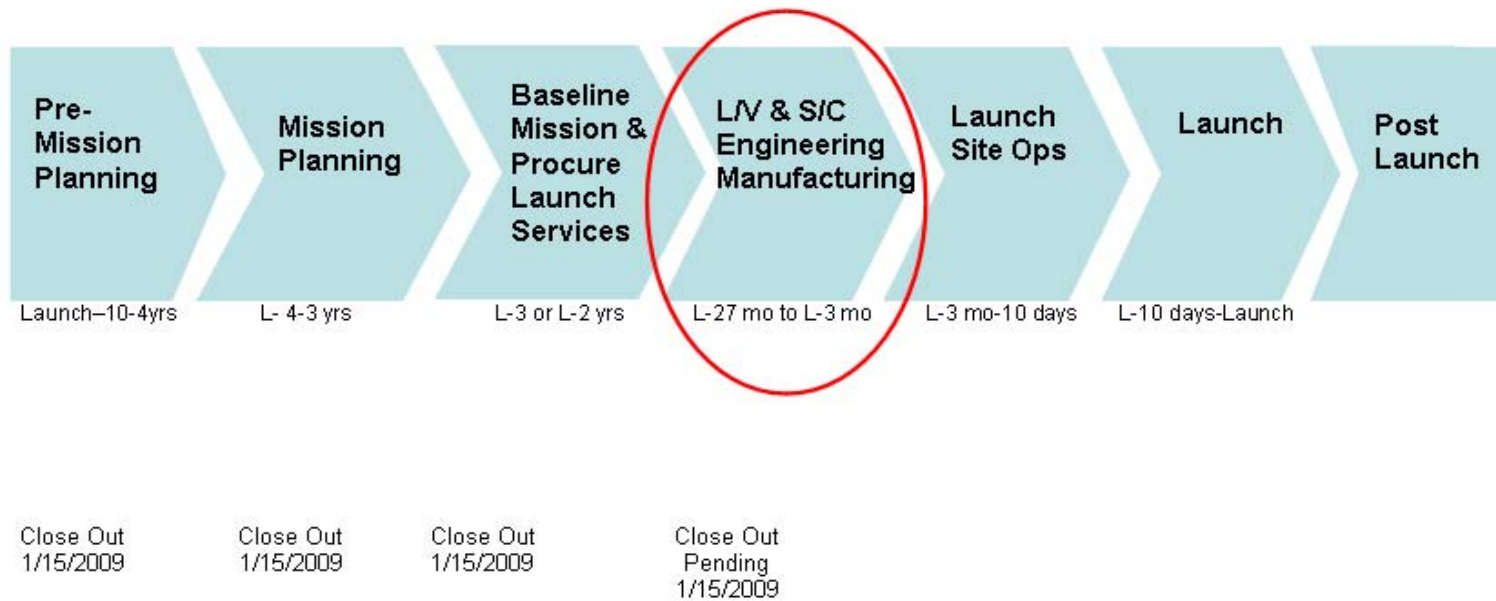


Kepler - Mission Life Cycle

Dave Breedlove

John F. Kennedy Space Center

LAUNCH SERVICES PROGRAM



September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

20



LAUNCH SERVICES PROGRAM

P R C B C F C C C U R R E N C E	5 91-100%					
	4 51-90%					
	3 11-50%			MO265		
	2 6-10%					
	1 1-5%	V0045				
		1	2	3	4	5

IMPACT



John F. Kennedy Space Center

Kepler - Significant Events

LAUNCH SERVICES PROGRAM

Accomplished	
TPAF use TA on contract near term	
Received and negotiated TPAF build proposal	
Revised FY06 funding profile to assist project with 2nd Qt shortfall	
Kepler Delta CDR	10/16/06-10/20/06
TA in work to determine Boeing approval of S/C use of "to be negotiated" area below sep plane. Received preliminary approval from Boeing in Aug.	08/01/2006
Boeing support/training for TPAF at Ball facility	10/02/2006-10/11/2006
Provide some of the flight connectors to support Kepler Cable build schedule.	12/15/2006-12/15/2006
Received Kepler FEM to support third CLA analysis and forwarded to Boeing (Contract Mod still in work)	09/11/2006-09/13/2006
S/C to deliver thermal model for ITA, canceled activity	12/22/2006-03/09/2007
MIWG planned for Nov 16	11/16/2006-11/16/2006
GOWG on Jan 19 at Astrotech, Titusville	01/18/2007
Delivered updated Kepler IRD	02/05/2007-02/07/2007
planning kick-off MIWG, April 5 in HB	02/08/2007-04/5/2007
ULA to deliver final set of GSE connectors to S/C	02/01/2007-02/23/2007
Draft ICD released for review	03/31/2007-4/31/2007
S/C delivered IGES files as input to Mission Compatibility. Delivered to LSC	02/14/2007-03/02/2007
MIWG/GOWG at KSC on 23-24 October	08/14/2007-10/25/2007
PMA input	11/26/2007-02/26/2008

Planned	
Flight fit check	09/16/2008-09/18/2008
MIWG	10/15/2008-10/16/2008

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

22

MIWG planned for 19 March 2008	03/19/2008
--------------------------------	------------

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

23



John F. Kennedy Space Center

Kepler Mission Management

Dave Breedlove

LAUNCH SERVICES PROGRAM

Mission

Launch Date

Orbit Requirement

Launch Vehicle Class

Launch Period Window

PPF

Mass (kg)

PAD

Kepler
2009/04/10
C3 0.6 km2/sec2, Earth trailing heliocentric
Delta II
Commercial PPF
1181 kg
Other

Kepler

ICD

Jul	Aug	Sep
G	G	G

There are no signed SCNs

There are no SCNs in Review

Observatory Status

Observatory Status

Schedule

Budget

Deliverables

Testing

ATLO

Instrument

Jul	Aug	Sep
G	G	G
G	G	G
G	G	G
G	G	G
G	G	G
G	G	G
G	G	G

Launch Vehicle Status

Integrated Schedule

CDRLs (S/C & LSC)

Manifest/Range

Ground Stations

Deployables

P-3/OTTR

Jul	Aug	Sep
G	G	G
G	G	G
Y	Y	Y
0	G	G
0	G	G
0	N/A	N/A

Mission Center:

Program:

PM

LVI

MM

IE

LSIM

PIM

MAM

MCE

MTE

JPL
Jim Fanson
Pete Darus
Dave Breedlove
Larry Craig
William Van Dyke
Randy Mizelle
Homero Hidalgo
Tuan Doan
Tuan Doan

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

24



John F. Kennedy Space Center

Kepler - Engineering

Larry Craig

LAUNCH SERVICES PROGRAM

	Jul	Aug	Sep
Launch Vehicle	G	G	0
Payload Fairing	G	G	0
First Stage	G	G	0
Second Stage	G	G	0
Third Stage	Y	Y	0
Payload Attach Fitting	G	G	0
Other	0	0	0
Mission Specific	G	G	0
Certification	N/A	N/A	0
Mission Analysis	G	G	0
ERS/ERB	G	G	0
Launch PAD/GSE	G	G	0
Mission Unique IV&V	0	N/A	0

REQUIREMENT VERIFICATION STATUS	
NUMBER OF REQUIREMENTS	0
VERIFIED TO DATE	0

LAUNCH PAD / GSE MODS (IF APPLICABLE)
IRD has requirement to use GN2 purge similar to MAP

MISSION UNIQUE STUDIES (IF APPLICABLE)
There are none.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

25



John F. Kennedy Space Center

Kepler - Mission ERB Status

Larry Craig

LAUNCH SERVICES PROGRAM

R/Y/G	ERS #	TITLE	ERB Req?		Board Held?			Closure		
			Y	N	Y	N	N/A	AI	ENG.	OCE
0	05-379	Kepler IRD	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
0	08-148	Kepler ICD Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

26



John F. Kennedy Space Center

Kepler - Vehicle ERB Status

Larry Craig

LAUNCH SERVICES PROGRAM

There are no Vehicle ERBs for this mission.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

27



John F. Kennedy Space Center

Kepler - Launch Site

William Van Dyke

LAUNCH SERVICES PROGRAM

	Jul	Aug	Sep
LSSP	G	G	G

LSSP	Planned	Released
Preliminary	11/16/07	11/20/07
Baseline	09/09/08	

	Jul	Aug	Sep
CUSTOMER INPUTS	G	G	G

DELIVERABLES	Jul	Aug	Sep
Security and Badging	G	G	G
Training and Personnel Cert	G	G	G
Contingency Plans	G	G	G
Safety LSIM	G	G	G
Radiation Control	G	G	G
Operational Plans	G	G	G

UNIQUE REQUIREMENTS

	Jul	Aug	Sep
LAUNCH SITE UNIQUE	G	G	G

PPF	G	G	G
------------	---	---	---

Spacecraft OPS	0	0	0
-----------------------	---	---	---

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

28



John F. Kennedy Space Center

Kepler Budget Breakdown

Randy Mizelle

LAUNCH SERVICES PROGRAM

The launch service budget includes:

* **Launch Services**

- Standard launch Vehicle Services provided by this contract. This line item is firm fixed price and has no flexibility.

* **Mission Uniques**

- Requirements necessary to customize basic vehicle hardware to meet unique s/c driven requirements.
- Other services directly attributable to the mission.
- Contains some flexibility except when technical risk is affected. Spacecraft requirements are the cost driver.

* **Integrated Services**

- LSP contractor support service (ELVIS, CAPPs, JBOSC, KICs, etc).
- USAF range costs attributable to the mission
- Limited flexibility

* **Payload Processing Facility**

- Government facility: spacecraft customers are required to be processed in a government facility if the mission is planetary or has nuclear requirements
- Commercial facility: all other missions have been directed to process in a commercial facility;
- Contains some budget flexibility. Additional spacecraft cleanliness requirements or hazardous requirements may increase PPF costs.

* **Telemetry**

- Assets required to meet minimum launch vehicle telemetry requirements.
- Includes fixed and deployable ground stations, instrumented aircraft, and ocean assets.
- Limited flexibility requirements are often set late in the integration cycle.

* **Fly Out**

- Costs that each mission in the 19-Pack must incur.
- Long lead material procurement to mitigate risks due to gaps in production and supplier orders.
- Post-production support for labor skill retention, procure, manufacture, store and maintain under configuration control, mission critical spare parts.
- Pad Sustainability costs for SLC-2 and SLC-17.
- No flexibility-contract costs

* **Nuclear**

- RTG/RHU processing
- RTG/RHU databooks and approval
- Limited flexibility

* **Reimbursable**

- Reimbursable FC for transportation, labor, and CMO.

* **Mission Flexibility**

- Portion of the mission budget available for funding additional task assignments, non-standard services or meeting unexpected requirements.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

29



John F. Kennedy Space Center

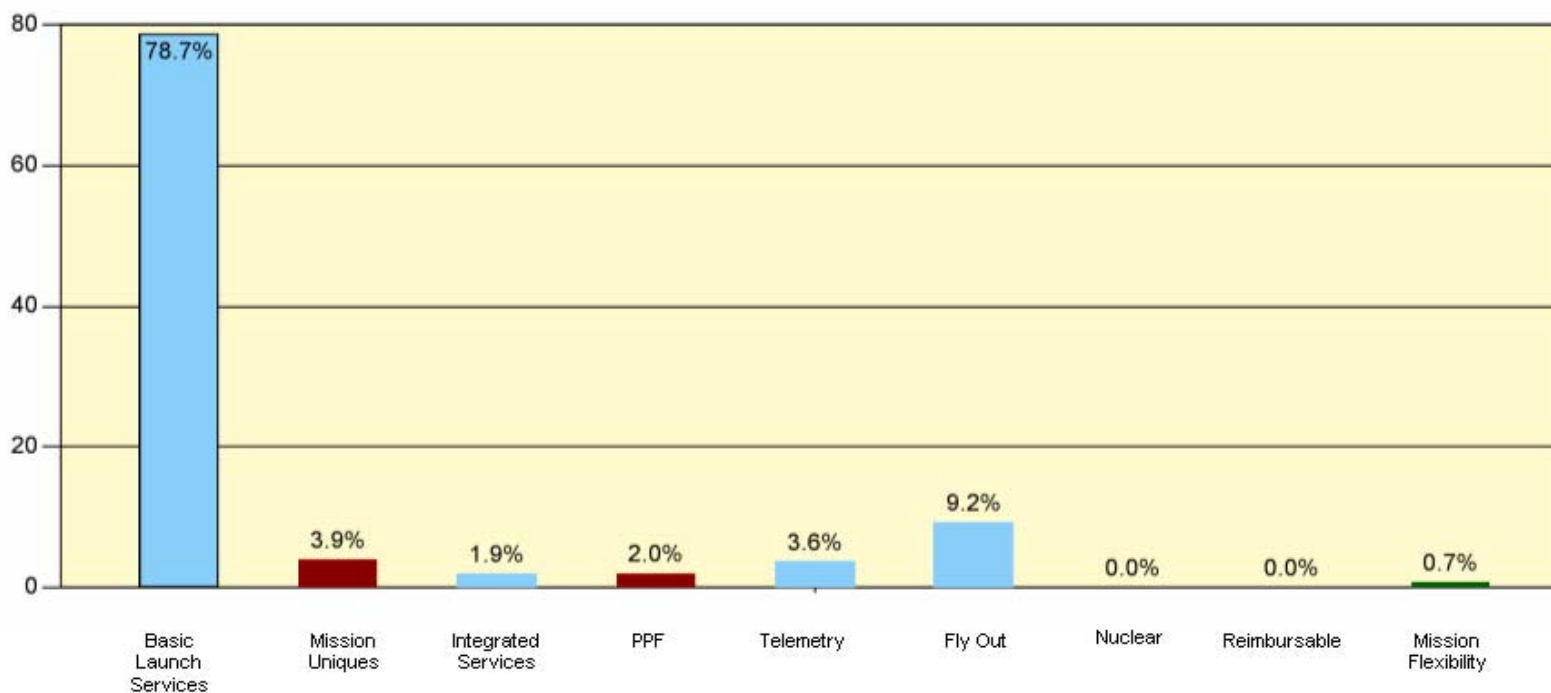
Launch Services Budget Breakdown

Kepler Mission

Randy Mizelle

LAUNCH SERVICES PROGRAM

% of Total Launch Service Cost - 9 / 2008



- No flexibility; cost are fixed
- Limited Flexibility depending on spacecraft requirements
- Flexible portion of budget

Notes:

Above percentages contain dollars associated with the Boeing settlement. Boeing settlement for this mission is \$645.0K.

Estimated cost impacts resulting from Contractor caused launch delay to 04/10/2009 are reflected in this status report. There is no change to mission flexibility since the last status report.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

30



John F. Kennedy Space Center

Kepler - Business

Randy Mizelle

LAUNCH SERVICES PROGRAM

Budget

Contracts

Jul	Aug	Sep
G	G	G
G	G	G

Milestone	Date
Milestone #1	12/04/2006
Milestone #2	03/06/2007
Milestone #3	07/09/2007
Milestone #4	03/18/2008
Milestone #5	03/18/2008
Milestone #6	07/14/2008
Milestone #7	08/16/2008
Milestone #8	11/16/2008
Milestone #9	02/16/2008

<input type="checkbox"/>	Open Milestone Payment
<input type="checkbox"/>	Paid Milestone

Contract Status		
Launch Services		
Contract Mod	Number	Description
	100	NSS 20.3.3/Quick Turnaround CLA
	152	NSS 20.3.2 Preliminary Performance/Trajectory Analysis
	178	NSS 20.3.4 Final Design Load Cycle
	125	NSS 33.1 Post Production Support CY05 (flyout)
	229	KEPLER Test Payload Attach Fitting (PAF)
	242	NSS 20.2 Early MIWG NSS 20.3.2 Preliminary Performance/Trajectory Analysis NSS 20.3.3 Quick Turnaround Coupled Loads Analysis
	125	NSS 30.1 Long-lead Mat'l/Adv NSS 33.1 Post Prod Spt (FY05)
	255	CLIN 21 Kepler Basic Launch Service
	255	NSS 2.1.1 Replace 10-ft w/10L PLF

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

31

Contract Mod	Number	Description		
	255	NSS 20.1 Pedigree Review		
	255	NSS 20.3.4 Final Design Load Analysis		
	255	NSS 9.1.2 Two 61-pin connectors		
	255	NSS 2.1.2 Replace 9ft Fairing with 10ft Fairing		
	0272	Cancel NSS 20.3.2 Preliminary Performance/Trajectory Analysis		
	255	ATP Mission		
	240	NSS 32.1 VAFB Launch Site O&M and NSS 33.1 Post Production Support		
	0306	Launch delay from 11/01/08 to 02/16/09.		
	309	NSS 35.2 Additional 40 Mission Console Notebooks		
	353	Launch delay from 02/16/09 to 04/10/09		
There are no LD Contract Mods				
Task Assignments	Number	Description	Completion Date	Invoice Paid Date
	NLSB-210R1	TPAF Support	11/1/2006	01/17/2007
	NLSB-221	TA NLSB-254 HGA Relocation Evaluation	09/15/2006	09/20/2006
	NLSB-245R1	61-Pin Connectors additional Material	12/18/2006	01/17/2007
	NLSB-253	Additional Integrated Thermal Analysis.	03/01/2007	03/19/2007
	NLSB-286	Kepler Line-Load Analysis	06/08/2007	01/08/2008
	NLSB-305R3	Lightning Detection System and Radio Frequency Detection System Installation onto Pad SLC-17B	04/16/2008	07/02/2008
	NLSB-308	Electrical Interface Test Connectors	04/30/2008	06/06/2008
	NLSB-316	Electrical Connector Interface Bracket	08/19/2008	
Contract Mod (PPF)	Number	Description		
	NNK08LA75D	East Coast Payload Processing Capability		
There are no Other Contract Mods				

	Issues
G	Mission has 0 days of grace remaining and the next notification point for a potential launch delay is 10/09/2008 for either Government or Contractor (L-6 mo. + 1 Day).
G	Milestone #7 invoice has not yet been received from the Contractor. Request for status has been made.



John F. Kennedy Space
Center

Kepler - Safety and Mission Assurance

Homero Hidalgo

LAUNCH SERVICES PROGRAM

Assurance Verification Areas	Status		Evidence of Completion	Jul	Aug	Sep
	Complete	In Work				
Quality				Y	Y	Y
Software / Hardware Problems	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Currently re-evaluating the ULA-Boeing's Quality Management System risk.	Y	Y	Y
Alerts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SMA is tracking no GIDEP issues at this time.	G	G	G
Audits/Inspections/Surveillances	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SMA Quality is continuing to follow the corrective actions implemented by Pac Sci from the MDA audit.	Y	Y	Y
Limited Life Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SMA is tracking no LLI issues at this time.	G	G	G
Reliability				G	G	G
FMEA/Fishbones/Equivalent	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No FMEA/Fishbones/Equivalent have been identified	G	G	G
Reliability Assessments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The reliability data gathering task is continuing	G	G	G
Safety				G	G	G
Requirements Definitions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No issues	G	G	G
Range Safety & Mission Flight Rules	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tailoring requirements have not been approved by Range Safety	G	G	G
Licenses/Use Authorizations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues	G	G	G
Safety Documentation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Working MSPSP in review	G	G	G
Non-compliances	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues	G	G	G
Contingency Planning	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No status	G	G	G
Mission Assurance				Y	Y	Y
Lessons Learned	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues.	G	G	G
First Flight/Mission Unique items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues	G	G	G
Test/Qualification/Certification	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues	G	G	G
Mission Assurance Assessments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Alenia 2nd-Stage Oxidizer Leak, inspection process ID; ULA transition	Y	Y	Y
Risk Management	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues	G	G	G

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

34



John F. Kennedy Space Center

Kepler Comm & Telemetry

Tuan Doan and Tuan Doan

LAUNCH SERVICES PROGRAM

Communications

Voice Comm
Data Comm
Networks
Video Comm
Timing
RF Comm
LSSP Comm Annex

Jul	Aug	Sep
G	G	G
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

Telemetry

Decommutation Tables
Data Integrity Test
Software Lockdown
Software Inventory
Console Configuration
Console Checkout

Jul	Aug	Sep
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

35



John F. Kennedy Space Center

WISE Project Summary

OVERALL MISSION

Jul	Aug	Sep
Y	Y	Y

LAUNCH SERVICES PROGRAM



Mission	WISE
Launch Date	2009/11/01
Launch Vehicle	Delta II
Launch Period Window	Any day of year
PPF	Commercial PPF

MISSION MANAGEMENT

	Jul	Aug	Sep
Observatory Status	G	G	G
Manifest/Range	G	G	G
Integrated Schedule	G	G	G
ICD	G	G	G
CDRLs (S/C & LSC)	G	G	G

LAUNCH SITE

	Jul	Aug	Sep
LSSP	G	G	G
Customer Inputs	G	G	G
PPF	G	G	G
Launch Site Unique	G	G	G
Spacecraft OPS	G	G	G

SAFETY & MISSION ASSURANCE

	Jul	Aug	Sep
Mission Assurance	Y	Y	Y
Safety	G	G	G
Quality	Y	G	Y
Reliability	G	G	G

ENGINEERING

Launch Vehicle	R	R	R
Mission Specific	G	G	G
Certification	G	G	G
Mission Analysis	G	G	G
ERS/ERB	G	G	G
Launch PAD/GSE	G	G	G
Mission Unique IV&V	N/A	N/A	N/A

COMM & TELEMETRY

	Jul	Aug	Sep
Communications	G	G	G
Telemetry	0	0	0

BUSINESS

	Jul	Aug	Sep
Budget	G	G	G
Contracts	Y	G	G

LEGEND

Proceeding on Plan
Area of Concern
Significant Problem
Not Evaluated
Not Applicable

G
Y
R
0
N/A

DOWNRANGE TELEMETRY

Ground Stations	G	G	G
Deployables	G	G	G
P-3/OTTR	G	G	G

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

36



WISE - Open/Accepted Risks

LAUNCH SERVICES PROGRAM

		Condition
RYG Trend	RiskID	Consequence
G	V0046	ULA/Boeing does not perform an inspection for microscopic cracks before providing a spacecraft customer with a test payload attach fitting (TPAF) or clampband. (P=1, I=5)
		Propagation of a micro crack(s) in the TPAF or clampband during shock or vibration testing could cause damage to the spacecraft.
R	V0050	Dawn experienced a significant delay very late in the hardware production process that delayed the launch readiness date. The same contributing causes exist for other NASA missions. (P=2, I=4)
		Possible delay of other NASA missions.
Y	V0057	During accelerated age testing on 9/28/07 a GG TLX line from lot UCO07001-002 failed to produce output. (P=3, I=5)
		Failure of the GG TLX will cause all six ground ignited GEMs to remain attached to the LV resulting in a mission failure
R	M0294	The standard 3715C PAF subcontractor cannot support hardware delivery. (P=3, I=3)
		3715C Payload Attach Fitting (PAF) may not be delivered in time to meet the spacecraft customer's fit check schedule.

P
R
C
B

C
F

C
C
C
U
R
R
E
N
C
E

5
91-
100%
4
51-90%
3
11-50%
2
6-
10%
1
1-5%



1 2 3 4 5

IMPACT



John F. Kennedy Space Center

WISE - Significant Events

LAUNCH SERVICES PROGRAM

Accomplished	
Quick turn around CLA on contract	Mar 06
S/C Questionnaire transmittal to ULA	10/31/2007
Early MIWG/GOWG	Nov 06
Confirmation Review	Oct 06
Authority To Proceed (ATP) w/27 mo integration cycle.	08/01/2007
S/C CDR	4/3/07
Hydrogen and Cryo GSE study	08/09/2007-12/12/2007
Mission CDR	06/20/2007
PRCB for ATP Concurrence	07/27/2007
Kickoff MIWG	10/3/07
Mission Turn On ERB	7/31/07-7/31/07
Vent Stack TIM at VAFB	12/12/2007
MIWG @ KSC	2/20/08-2/20/08
Hydrogen Cryostat Vent Stack CDR	6/26/08
Receive ICD Initial Draft	5/12/08-5/12/08
WISE MIWG	07/15/2008

Planned	
Kickoff GOWG @ VAFB	TBD

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

38



John F. Kennedy Space Center

WISE Mission Management

Armando Piloto

LAUNCH SERVICES PROGRAM

Mission

Launch Date

Orbit Requirement

Launch Vehicle Class

Launch Period Window

PPF

Mass (kg)

PAD

WISE
2009/11/01
725km sun sync 6 am or pm ascending node
Delta II
Any day of year
Commercial PPF
1387
SLC-2

Observatory Status

Observatory Status

Schedule

Budget

Deliverables

Testing

ATLO

Instrument

Jul Aug Sep

G	G	G
G	G	G
G	G	G
G	G	G
Y	G	G
G	G	G
G	G	G

Mission Center:

Program:

PM

LVI

MM

IE

LSIM

PIM

MAM

MCE

MTE

JPL
Explorer
Bill Irace
Pete Darus
Armando Piloto
Jim Hoffman
Jeffrey Ehram
Randy Mizelle
Homero Hidalgo
Tuan Doan
Tuan Doan



ICD

Jul Aug Sep

G	G	G
---	---	---

There are no signed SCNs

SCNS IN REVIEW

SCN # DATE SIGNED

ICD Pending

Launch Vehicle Status

Integrated Schedule

CDRLs (S/C & LSC)

Manifest/Range

Ground Stations

Deployables

P-3/OTTR

G	G	G
G	G	G
G	G	G
G	G	G
G	G	G
G	G	G

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

39



John F. Kennedy Space Center

WISE - Engineering

Jim Hoffman

LAUNCH SERVICES PROGRAM

	Jul	Aug	Sep
Launch Vehicle	R	R	R
Payload Fairing	G	G	G
First Stage	G	G	G
Second Stage	G	G	G
Third Stage	N/A	N/A	N/A
Payload Attach Fitting	R	R	R
Other	N/A	N/A	N/A
Mission Specific	G	G	G
Certification	G	G	G
Mission Analysis	G	G	G
ERS/ERB	G	G	G
Launch PAD/GSE	G	G	G
Mission Unique IV&V	N/A	N/A	N/A

REQUIREMENT VERIFICATION STATUS

NUMBER OF REQUIREMENTS	0
VERIFIED TO DATE	0

LAUNCH PAD / GSE MODS (IF APPLICABLE)

Evaluating the pad impacts of servicing the S/C Hydrogen Cryostat

MISSION UNIQUE STUDIES (IF APPLICABLE)

Evaluating methods to reduce the high lateral loads CLA results

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

40



John F. Kennedy Space Center

WISE - Mission ERB Status

Jim Hoffman

LAUNCH SERVICES PROGRAM

R/Y/G	ERS #	TITLE	ERB Req?		Board Held?			Closure		
			Y	N	Y	N	N/A	AI	ENG.	OCE
G	ERS-07-272 (TBS)	Mission ICD ERB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	08-51	WISE Hydrogen Vent Stack Design	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R	08-118	3715C WISE PAF Design & Mfr Change	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

41



John F. Kennedy Space Center

WISE - Vehicle ERB Status

Jim Hoffman

LAUNCH SERVICES PROGRAM

R/Y/G	ERS #	TITLE	ERB Req?		Board Held?			Closure		
			Y	N	Y	N	N/A	AI	ENG.	OCE
G	06-284	2nd Stage Tank Leak (WISE Mission Specific ERB)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	07-40	Goodrich Analysis of Leach and Tyco Relay Failures (long term fix)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	07-308	Delta II GG TLX Output Failure (flt specific)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	07-366	COSMO-2 1st Stage Engine Mixture Ratio Observation (flt specific)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	08-29	40Ah Common Battery for Delta II and delta IV (possible first flt for WISE)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

42



John F. Kennedy Space Center

WISE - Launch Site

Jeffrey Ehram

LAUNCH SERVICES PROGRAM

	Jul	Aug	Sep
LSSP	G	G	G

LSSP	Planned	Released
Preliminary	02/15/2008	02/01/2008
Baseline	05/01/2009	

	Jul	Aug	Sep
CUSTOMER INPUTS	G	G	G

	Jul	Aug	Sep
DELIVERABLES			
Security and Badging	G	G	G
Training and Personnel Cert	G	G	G
Contingency Plans	G	G	G
Safety LSIM	G	G	G
Radiation Control	G	G	G
Operational Plans	G	G	G

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

43

UNIQUE REQUIREMENTS

	Jul	Aug	Sep
LAUNCH SITE UNIQUE	G	G	G
Two 500liter dewars of liquid helium to be replaced every day on Level 5 at SLC-2. Level 5 modifications required for dewars and cryo servicing GSE. Fairing strongbacks need relocation. Initial Study TA was functionally completed on 12 Dec 2007. Next step is a pathfinder TA. ULA Proposal received. JPL concerned about budget and placed proposal process on hold for de-scoping. De-scope complete; ULA proposal acceptable; ATP awarded 15 July 2008.	G	G	G
Design/Install hydrogen vent stack at PPF, SLC-2 MST and Boeing Can. Initial Study TA shows MSX vent design satisfactory. Next step is fabrication TA. ULA proposal acceptable. ATP was April 17 2008. ERB design review was 6 June 2008; fabrication started.	G	G	G
PPF	G	G	G
Spacecraft OPS	G	G	G



John F. Kennedy Space Center

WISE Budget Breakdown

Randy Mizelle

LAUNCH SERVICES PROGRAM

The launch service budget includes:

* **Launch Services**

- Standard launch Vehicle Services provided by this contract. This line item is firm fixed price and has no flexibility.

* **Mission Uniques**

- Requirements necessary to customize basic vehicle hardware to meet unique s/c driven requirements.
- Other services directly attributable to the mission.
- Contains some flexibility except when technical risk is affected. Spacecraft requirements are the cost driver.

* **Integrated Services**

- LSP contractor support service (ELVIS, CAPPs, JBOSC, KICs, etc).
- USAF range costs attributable to the mission
- Limited flexibility

* **Payload Processing Facility**

- Government facility: spacecraft customers are required to be processed in a government facility if the mission is planetary or has nuclear requirements
- Commercial facility: all other missions have been directed to process in a commercial facility;
- Contains some budget flexibility. Additional spacecraft cleanliness requirements or hazardous requirements may increase PPF costs.

* **Telemetry**

- Assets required to meet minimum launch vehicle telemetry requirements.
- Includes fixed and deployable ground stations, instrumented aircraft, and ocean assets.
- Limited flexibility requirements are often set late in the integration cycle.

* **Fly Out**

- Costs that each mission in the 19-Pack must incur.
- Long lead material procurement to mitigate risks due to gaps in production and supplier orders.
- Post-production support for labor skill retention, procure, manufacture, store and maintain under configuration control, mission critical spare parts.
- Pad Sustainability costs for SLC-2 and SLC-17.
- No flexibility-contract costs

* **Nuclear**

- RTG/RHU processing
- RTG/RHU databooks and approval
- Limited flexibility

* **Reimbursable**

- Reimbursable FC for transportation, labor, and CMO.

* **Mission Flexibility**

- Portion of the mission budget available for funding additional task assignments, non-standard services or meeting unexpected requirements.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified



John F. Kennedy Space Center

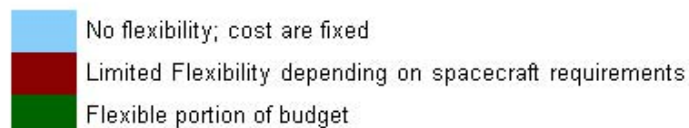
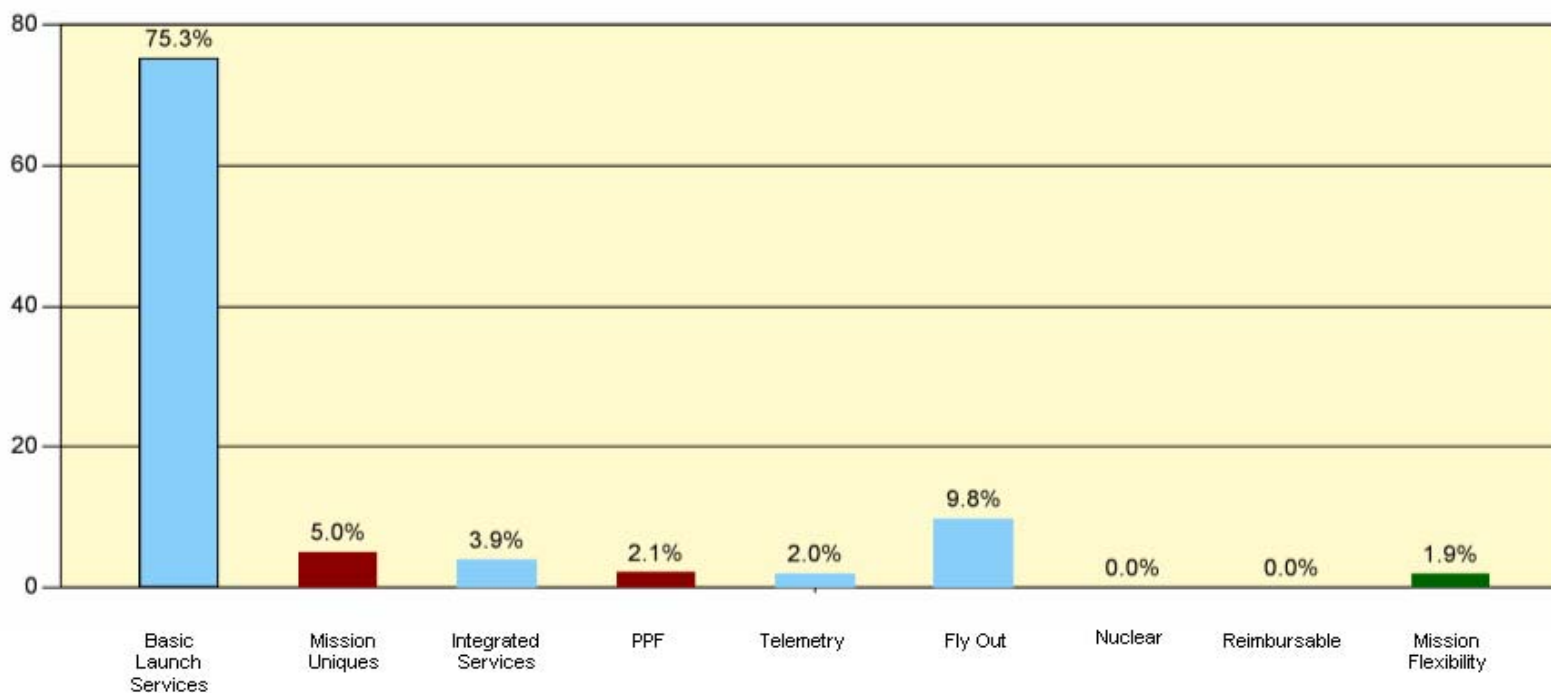
Launch Services Budget Breakdown

WISE Mission

Randy Mizelle

LAUNCH SERVICES PROGRAM

% of Total Launch Service Cost - 9 / 2008



Notes:

New requirements, PLF Door Relocation and Enhanced Fairing Cleaning, have been added to Mission Uniques since April status. April reporting Mission Flexibility was 2.2%.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

46



John F. Kennedy Space Center

WISE - Business

Randy Mizelle

LAUNCH SERVICES PROGRAM

Budget

Contracts

Jul	Aug	Sep
G	G	G
Y	G	G

Milestone	Date
Milestone 1	09/26/2007
Milestone 2	12/18/2007
Milestone 3	05/30/2008
Milestone 4	05/30/2008
Milestone 5	08/01/2008
Milestone 6	11/01/2008
Milestone 7	02/01/2009
Milestone 8	05/01/2009
Milestone 9	08/01/2009
Milestone 10	11/01/2009

<input type="checkbox"/>	Open Milestone Payment
<input type="checkbox"/>	Paid Milestone

Contract Status

Launch Services		
Contract Mod	Number	Description
	60	12/11/02 FPB directed change in MIDEX-6 (CLIN 25) Vehicle config. From 2420-10 to 2425-10
	191	8/26/05 FPB directed the renaming of CLIN 25 from MIDEX-6 to "WISE"; establishment of the launch site as VAFB; and change of vehicle config. From 2425-10 to 2320-10
	214	NSS 20.3.3 Early CLA
	236	12/6/2005 FPB directed change to WISE Launch Date from 3/31/08 to 6/14/09
	242	NSS 20.2 Early MIWG
	257	NSS 20.3.4 Final Design Load Cycle
	265	Adjust launch date from June 14, 2009 to November 1, 2009.
	295	ATP Mission
	295	NSS 30.2 Long Lead Material Liquidation Credit

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

47

Contract Mod	Number	Description		
	295	NSS 2.2.3 Additonal 24 -inch diameter door		
	295	NSS 3.1.3 3715C Payload Adapter		
	295	NSS 35.2 Additional 40 Mission Console Notebooks		
	295	NSS 20.1 Pedigree Review		
	295	NSS 27.1 Western Range (WR) Launch Incremental		
	125	NSS 30.1 Long-lead Mat'l/Adv NSS 33.1 Post Prod Support		
	240	NSS 32.1 VAFB Launch Site O&M and NSS 33.1 Post Production		
There are no LD Contract Mods				
Task Assignments	Number	Description	Completion Date	Invoice Paid Date
	NLSB-299R1	Fabrication and testing of Hydrogen Vent Stack on the SLC-2 Mobil Service Tower and Transportation Canister	11/10/2007	02/26/2008
	NLSB-304	37-Pin electrical connectors	10/04/2007	02/26/2008
	NLSB-307	Test PAF Inspection	01/20/2008	02/26/2008
	NLSB-325	Fabrication and Testing of Hydrogen Vent Stacks on the SLC-2 MST and Transportation Canister	09/30/2008	
	NLSB-338	Pathfinder for Cryogenic GSE on the SLC-2 MST	11/11/2008	
	NLSB-339	Payload Fairing (PLF) Door Relocation	12/31/2009	
	NLSB-342	Payload Attached Fitting(PAF) Pre-Production Review	09/30/2008	
Contract Mod (PPF)	Number	Description		
	NNK07LA79B	Basic Payload Processing Task Order		
There are no Other Contract Mods				
	Issues			
G	Mission has 120 days of grace remaining and the next notification point for a potential launch delay is 10/31/2008 for either Government or Contractor (L-12 mo + 1 Day).			
G	Milestone #5 Launch Service payment invoice has been received and is under review.			



John F. Kennedy Space
Center

WISE - Safety and Mission Assurance

Homero Hidalgo

LAUNCH SERVICES PROGRAM

Assurance Verification Areas	Status		Evidence of Completion	Jul	Aug	Sep
	Complete	In Work				
Quality				Y	G	Y
Software / Hardware Problems	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Currently re-evaluating the ULA-Boeing's Quality Management System risk.	Y	Y	Y
Alerts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SMA is tracking no GIDEP issues at this time.	G	G	G
Audits/Inspections/Surveillances	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SMA Quality is continuing to follow the corrective actions implemented by Pac Sci from the MDA audit.	Y	Y	Y
Limited Life Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SMA is tracking no LLI issues at this time	G	G	G
Reliability				G	G	G
FMEA/Fishbones/Equivalent	<input type="checkbox"/>	<input checked="" type="checkbox"/>		G	G	G
Reliability Assessments	<input type="checkbox"/>	<input checked="" type="checkbox"/>		G	G	G
Safety				G	G	G
Requirements Definitions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Issues at this time	G	G	G
Range Safety & Mission Flight Rules	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Issues at this time	G	G	G
Licenses/Use Authorizations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Issues at this time	G	G	G
Safety Documentation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Issues at this time	G	G	G
Non-compliances	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Issues at this time	G	G	G
Contingency Planning	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Issues at this time	G	G	G
Mission Assurance				Y	Y	Y
Lessons Learned	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Issues at this time	G	G	G
First Flight/Mission Unique items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cryo Vent Stack effort in progress; no current issues: New PAF vendor ID	G	G	G
Test/Qualification/Certification	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Issues at this time	G	G	G
Mission Assurance Assessments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Alenia 2nd-Stage Oxidizer Leak, inspection process ID; ULA transition; High shock loads from clampband separation;	Y	Y	Y
Risk Management	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Issues at this time	G	G	G

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

49



John F. Kennedy Space Center

WISE Comm & Telemetry

Tuan Doan and Tuan Doan

LAUNCH SERVICES PROGRAM

Communications

Voice Comm
Data Comm
Networks
Video Comm
Timing
RF Comm
LSSP Comm Annex

Jul	Aug	Sep
G	G	G
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

Telemetry

Decommuration Tables
Data Integrity Test
Software Lockdown
Software Inventory
Console Configuration
Console Checkout

Jul	Aug	Sep
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

50



John F. Kennedy Space Center

Aquarius Project Summary

OVERALL MISSION

Jul	Aug	Sep
G	G	G

LAUNCH SERVICES PROGRAM



Mission	Aquarius
Launch Date	2010/05/23
Launch Vehicle	Delta II
Launch Period Window	
PPF	Commercial PPF

MISSION MANAGEMENT

	Jul	Aug	Sep
Observatory Status	G	G	G
Manifest/Range	G	G	G
Integrated Schedule	G	G	G
ICD	0	0	G
CDRLs (S/C & LSC)	G	G	G

LAUNCH SITE

	Jul	Aug	Sep
LSSP	G	G	G
Customer Inputs	G	G	G
PPF	G	G	G
Launch Site Unique	G	G	G
Spacecraft OPS	G	G	G

SAFETY & MISSION ASSURANCE

	Jul	Aug	Sep
Mission Assurance	Y	Y	Y
Safety	G	G	G
Quality	Y	Y	Y
Reliability	G	G	G

ENGINEERING

	Jul	Aug	Sep
Launch Vehicle	G	G	G
Mission Specific	G	G	G
Certification	N/A	N/A	0
Mission Analysis	G	G	G
ERS/ERB	G	G	G
Launch PAD/GSE	G	G	G
Mission Unique IV&V	N/A	N/A	0

COMM & TELEMETRY

	Jul	Aug	Sep
Communications	0	0	0
Telemetry	0	0	0

BUSINESS

	Jul	Aug	Sep
Budget	Y	Y	Y
Contracts	G	G	G

LEGEND

Proceeding on Plan
 Area of Concern
 Significant Problem
 Not Evaluated
 Not Applicable

G
Y
R
0
N/A

DOWNRANGE TELEMETRY

	Jul	Aug	Sep
Ground Stations	0	0	G
Deployables	0	0	0
P-3/OTTR	0	0	0

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

51



LAUNCH SERVICES PROGRAM

P R C B C F C C C U R R E N C E	5 91-100%					
	4 51-90%					
	3 11-50%					MC272
	2 6-10%					
	1 1-5%					
		1	2	3	4	5
		IMPACT				



John F. Kennedy Space Center

Aquarius - Significant Events

LAUNCH SERVICES PROGRAM

Accomplished	
Instrument PDR	06/28/2005-06/30/2005
Spacecraft PDR	08/03/2005-08/04/2005
Mission Confirmation Review held	09/28/2005
Program Intro / Range Concept Briefing at VAFB	12/16/2005
Quick turnaround CLA	
Instrument CDR at JPL	09/18/2006-09/22/2006
TFA data delivery	9/11/2006
Deliver Final SSPP and Initial MSPSP to the Range	09/15/2006
JPL to perform RF monitoring at SSI and Astrotech	08/30/2006-08/31/2006
Kick-Off Meeting with ULA	March 2008-03/28/2008
SC Mission CDR	July 2008
IRD	07/13/2007-10/12/2007
Ground Ops/Launch vehicle TIM	October 2007
Full CLA planned prior to ATP	09/03/2007-12/10/2007
DPMC on schedule re-plan on 16 November	11/16/2007-11/30/2007
ATP for mission	11/30/2007-11/30/2007
TPAF installation for EM in Brazil	05/29/2008-06/04/2008
EM shock test	06/26/2008-07/03/2008

Planned	
MIWG-2/GOWG-1	10/07/2008-10/09/2008

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

53



John F. Kennedy Space Center

Aquarius Mission Management

Dave Breedlove

LAUNCH SERVICES PROGRAM

Mission

Launch Date

Orbit Requirement

Launch Vehicle Class

Launch Period Window

PPF

Mass (kg)

PAD

Aquarius
2010/05/23
Sun Sync
Delta II
Commercial PPF
1675
SLC-2

AQUARIUS

ICD

There are no signed SCNs

Jul Aug Sep

0	0	0
---	---	---

There are no SCNs in Review

Observatory Status

Observatory Status

Schedule

Budget

Deliverables

Testing

ATLO

Instrument

Jul Aug Sep

0	0	0
0	0	0
Y	Y	Y
0	0	0
0	0	0
0	0	0
0	0	0

Launch Vehicle Status

Integrated Schedule

CDRLs (S/C & LSC)

Manifest/Range

Ground Stations

Deployables

P-3/OTTR

0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

Mission Center:

Program:

PM

LVI

MM

IE

LSIM

PIM

MAM

MCE

MTE

JPL

ESSP

Amit Sen

Mike Davis

Dave Breedlove

Norman Beck, Jr.

Mark Mertz

Shaqueena Lewis

Michael Johnson

Robert McEntire

Nathan Wood

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

54



John F. Kennedy Space Center

Aquarius - Engineering

Norman Beck, Jr.

LAUNCH SERVICES PROGRAM

	Jul	Aug	Sep
Launch Vehicle	G	G	G
Payload Fairing	G	G	G
First Stage	G	G	G
Second Stage	G	G	G
Third Stage	N/A	N/A	0
Payload Attach Fitting	G	G	G
Other	G	G	G
Mission Specific	G	G	G
Certification	N/A	N/A	0
Mission Analysis	G	G	G
ERS/ERB	G	G	G
Launch PAD/GSE	G	G	G
Mission Unique IV&V	N/A	N/A	0

REQUIREMENT VERIFICATION STATUS	
NUMBER OF REQUIREMENTS	0
VERIFIED TO DATE	0

LAUNCH PAD / GSE MODS (IF APPLICABLE)
Launch PAD sustainment support into 2010

MISSION UNIQUE STUDIES (IF APPLICABLE)
There are none.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

55



John F. Kennedy Space Center

Aquarius - Mission ERB Status

Norman Beck, Jr.

LAUNCH SERVICES PROGRAM

R/Y/G	ERS #	TITLE	ERB Req?		Board Held?			Closure		
			Y	N	Y	N	N/A	AI	ENG.	OCE
0	08-55	Aquarius ICD Approval	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	07-05	Aquarius TPAF	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

56



John F. Kennedy Space Center

Aquarius - Vehicle ERB Status

Norman Beck, Jr.

LAUNCH SERVICES PROGRAM

There are no Vehicle ERBs for this mission.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

57



John F. Kennedy Space Center

Aquarius - Launch Site

Mark Mertz

LAUNCH SERVICES PROGRAM

	Jul	Aug	Sep
LSSP	G	G	G

LSSP	Planned	Released
Preliminary	11/2008	
Baseline	9/2009	

	Jul	Aug	Sep
CUSTOMER INPUTS	G	G	G

DELIVERABLES	Jul	Aug	Sep
Security and Badging	G	G	G
Training and Personnel Cert	G	G	G
Contingency Plans	G	G	G
Safety LSIM	G	G	G
Radiation Control	G	G	G
Operational Plans	G	G	G

UNIQUE REQUIREMENTS

	Jul	Aug	Sep
LAUNCH SITE UNIQUE	G	G	G
Fueling Support Services	G	G	G

PPF	G	G	G
------------	---	---	---

Spacecraft OPS	G	G	G
-----------------------	---	---	---

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

58



John F. Kennedy Space Center

Aquarius Budget Breakdown

Shaqueena Lewis

LAUNCH SERVICES PROGRAM

The launch service budget includes:

* **Mission Uniques**

- Requirements necessary to customize basic vehicle hardware to meet unique s/c driven requirements.
- Contains some flexibility except when technical risk is affected. Spacecraft requirements are the cost driver.

* **Integrated Services**

- LSP contractor support service (ELVIS, CAPPS, JBOSC, KICs, etc).
- USAF range costs attributable to the mission

* **Payload Processing Facility**

- Government facility: spacecraft customers are required to be processed in a government facility if the mission is planetary or has nuclear requirements
- Commercial facility: all other missions have been directed to process in a commercial facility;
- Contains some budget flexibility. Additional spacecraft cleanliness requirements or hazardous requirements may increase PPF costs.

* **Telemetry**

- Assets required to meet minimum launch vehicle telemetry requirements.
- Includes fixed and deployable ground stations, instrumented aircraft, and ocean assets.
- Limited flexibility requirements are often set late in the integration cycle.

* **Fly Out**

- Costs that each mission in the 19-Pack must incur.
- Long lead material procurement to mitigate risks due to gaps in production and supplier orders.
- Post-production support for labor skill retention, procure, manufacture, store and maintain under configuration control, mission critical spare parts.
- Pad Sustainability costs for SLC-2 and SLC-17.
- No flexibility-contract costs

* **Nuclear**

- RTG/RHU processing
- RTG/RHU databooks and approval
- Limited flexibility

* **Reimbursable**

- Reimbursable FC for transportation, labor, and CMO.

* **Mission Flexibility**

- Portion of the mission budget available for funding additional task assignments, non-standard services or meeting unexpected requirements.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

59



John F. Kennedy Space Center

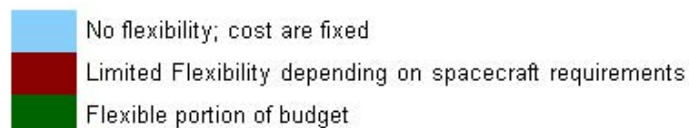
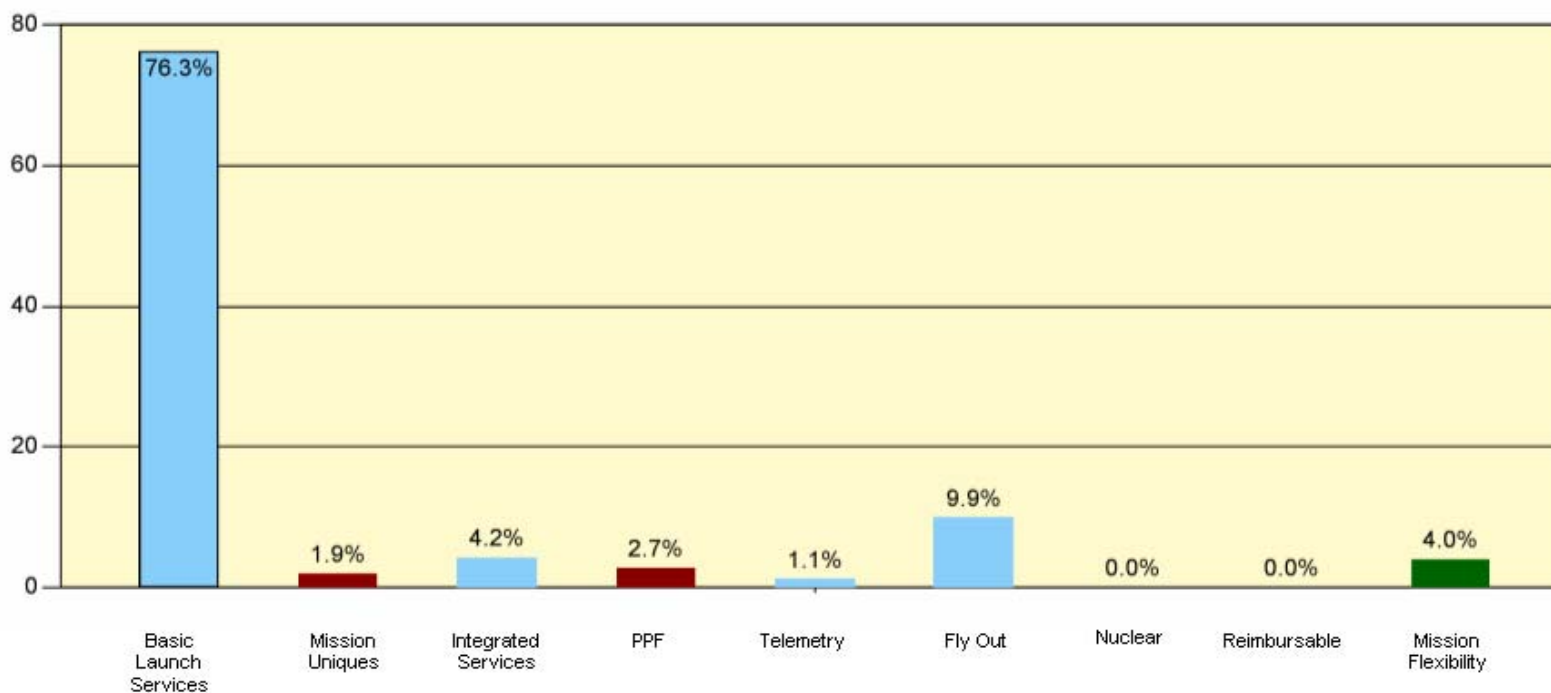
Launch Services Budget Breakdown

Aquarius Mission

Shaqueena Lewis

LAUNCH SERVICES PROGRAM

% of Total Launch Service Cost - 9 / 2008



Notes:

Mission Flexibility remains at 4.0%.

Budget does not contain post-production support or pad maintenance for 2010 launch date. These costs are currently being developed by LSP.

Project is currently in early stages; requirements still being developed.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

60



John F. Kennedy Space Center

Aquarius - Business

Shaqueena Lewis

LAUNCH SERVICES PROGRAM

Budget

Contracts

Jul	Aug	Sep
Y	Y	Y
G	G	G

Milestone	Date
Milestone 1	11/23/2007
Milestone 1A	02/23/2008
Milestone 2	05/23/2008
Milestone 3	08/23/2008
Milestone 4	11/23/2008
Milestone 5	02/23/2009
Milestone 6	05/23/2009
Milestone 7	08/23/2009
Milestone 8	11/23/2009
Milestone: 9	02/23/2010
Milestone: 10	05/23/2010

<input type="checkbox"/>	Open Milestone Payment
<input checked="" type="checkbox"/>	Paid Milestone

Contract Status

Launch Services		
Contract Mod	Number	Description
	219	NSS 20.2.3 Early Trajectory Analysis
	201	NSS 20.3.3 Quick Turnaround CLA
	311	NSS 20.3.4 Final Design Load Cycle
	313	Aquarius ATP
	198	NSS 32.1 VAFB Launch Site Maintenance and NSS 33.1 Post Production Support
	240	NSS 32.1 VAFB Launch Site O&M and NSS 33.1 Post Production Support
	337	NSS 3.2.1 6306 Payload Adapter

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

61

Contract Mod (LD)	Number	Description		
	076	Delay from 9/07 to NET 3/1/08		
	136	Delay from 3/08 to 9/08		
	235	Delay from 9/30/08 to 3/23/09		
	264	Delay from 3/23/09 to 7/14/2009		
Task Assignments	Number	Description	Completion Date	Invoice Paid Date
	NLSB 178	Range Introduction meeting support	12/16/2005	01/06/2006
	NLSB 180	Accelerated Time Histories	03/10/2006	04/07/2006
	NLSB 197	Pre-ATP Support (export docs, travel)	12/03/2007	
	NLSB 208	Pre-ATP Shipping	01/31/2008	02/29/2008
	NLSB 314	Engineering Model Test Support	07/31/2008	
There are no PPF Contract Mods				
Contract Mod (Other)	Number	Description		
	NLSB 125	NSS 30.1 FY05 Flyout Costs		
	Issues			
Y	First Delta II launch in 2010. Launch Pad maintenance cost and Post-production support costs are currently not fully known. Tech Evals in work. Working with ULA and USAF; hope to finalize in October.			
G	Aquarius mission has 120 days of grace remaining and the next notification point for a potential launch delay is 05/22/2009 for either Government or Contractor (L-12 mo + 1 Day).			
G	Invoice for milestone payment 3 has been received; invoice signed on 09/12/2008.			



John F. Kennedy Space
Center

Aquarius - Safety and Mission Assurance

Michael Johnson

LAUNCH SERVICES PROGRAM

Assurance Verification Areas	Status		Evidence of Completion			
	Complete	In Work		Jul	Aug	Sep
Quality				Y	Y	Y
Software / Hardware Problems	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Continuing to monitor ULA-Boeing's response to Quality Management System risk	Y	Y	Y
Alerts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G
Audits/Inspections/Surveillances	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G
Limited Life Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G
Reliability				G	G	G
FMEA/Fishbones/Equivalent	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G
Reliability Assessments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G
Safety				G	G	G
Requirements Definitions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G
Range Safety & Mission Flight Rules	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G
Licenses/Use Authorizations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G
Safety Documentation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G
Non-compliances	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G
Contingency Planning	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G
Mission Assurance				Y	Y	Y
Lessons Learned	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G
First Flight/Mission Unique items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G
Test/Qualification/Certification	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G
Mission Assurance Assessments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tracking Alenia tank issues	Y	Y	Y
Risk Management	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues at this time	G	G	G

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

63



John F. Kennedy Space Center

Aquarius Comm & Telemetry

Robert McEntire and Nathan Wood

LAUNCH SERVICES PROGRAM

Communications

Voice Comm
Data Comm
Networks
Video Comm
Timing
RF Comm
LSSP Comm Annex

Jul	Aug	Sep
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

Telemetry

Decommuration Tables
Data Integrity Test
Software Lockdown
Software Inventory
Console Configuration
Console Checkout

Jul	Aug	Sep
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

64



John F. Kennedy Space Center

GRAIL Project Summary

OVERALL MISSION

Jul	Aug	Sep
G	G	G

LAUNCH SERVICES PROGRAM



Mission	GRAIL
Launch Date	2011/9/01
Launch Vehicle	Delta II
Launch Period Window	
PPF	ASO-KSC

MISSION MANAGEMENT

	Jul	Aug	Sep
Observatory Status	G	G	G
Manifest/Range	G	G	G
Integrated Schedule	G	G	G
ICD	G	G	G
CDRLs (S/C & LSC)	G	G	G

LAUNCH SITE

	Jul	Aug	Sep
LSSP	0	G	0
Customer Inputs	0	G	0
PPF	0	G	0
Launch Site Unique	0	G	0
Spacecraft OPS	0	0	0

SAFETY & MISSION ASSURANCE

	Jul	Aug	Sep
Mission Assurance	G	G	0
Safety	G	G	0
Quality	G	Y	0
Reliability	G	G	0

ENGINEERING

	Jul	Aug	Sep
Launch Vehicle	G	G	0
Mission Specific	G	G	0
Certification	N/A	0	0
Mission Analysis	G	G	0
ERS/ERB	G	G	0
Launch PAD/GSE	G	G	0
Mission Unique IV&V	G	G	0

COMM & TELEMETRY

	Jul	Aug	Sep
Communications	0	0	0
Telemetry	0	0	0

BUSINESS

	Jul	Aug	Sep
Budget	G	G	G
Contracts	G	G	G

LEGEND

Proceeding on Plan
 Area of Concern
 Significant Problem
 Not Evaluated
 Not Applicable

G
Y
R
0
N/A

DOWNRANGE TELEMETRY

	Jul	Aug	Sep
Ground Stations	G	G	G
Deployables	0	0	0
P-3/OTTR	0	0	0

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

65



John F. Kennedy Space Center

GRAIL - Open/Accepted Risks

LAUNCH SERVICES PROGRAM

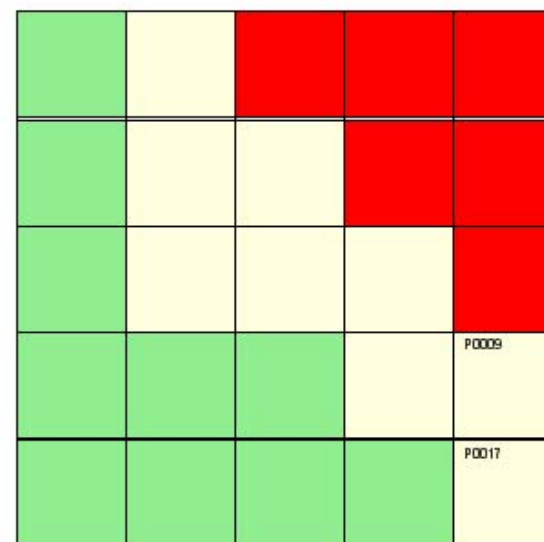
		Condition
RYG	RiskID	Consequence
0	P0009	Condition: Existing Firm Delta II 19-Pack missions are changing (schedule and/or requirements), and are no longer within the original LSTO awarded parameters.
		Consequence: Launch Services Program will potentially not be able to meet its financial and contractual obligations.
0	P0017	Condition: A signed MOA for transition of SLC-17 Delta II assets from the Air Force to NASA does not exist.
		Consequence: Without the signed MOA, there will be a break in O&M at the pads once the Air Force flies out their last mission.

P
R
C
B

C
F

C
C
C
U
R
R
E
N
C
E

5
91-
100%
4
51-90%
3
11-50%
2
6-
10%
1
1-5%



1 2 3 4 5

IMPACT

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

66



John F. Kennedy Space Center

GRAIL - Significant Events

LAUNCH SERVICES PROGRAM

Accomplished	
ATP	04/25/2008
received preliminary IRD	06/01/2008-06/01/2008
GRAIL Payload Safety Introduction Briefing	09/09/2008

Planned	
Preliminary Design Review	11/11/2008-11/13/2008
Kickoff MIWG	01/21/2009

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

67



John F. Kennedy Space Center

GRAIL Mission Management

Bruce Reid

LAUNCH SERVICES PROGRAM

Mission

Launch Date

Orbit Requirement

Launch Vehicle Class

Launch Period Window

PPF

Mass (kg)

PAD



GRAIL
2011/9/01
Lunar Trajectory
Delta II
ASO-KSC
678
SLC-17 B

Observatory Status

Observatory Status

Schedule

Budget

Deliverables

Testing

ATLO

Instrument

Jul	Aug	Sep
G	G	G
G	G	G
G	G	G
G	G	G
G	G	G
G	G	G
G	G	G

Launch Vehicle Status

Integrated Schedule

CDRLs (S/C & LSC)

Manifest/Range

Ground Stations

Deployables

P-3/OTTR

Jul	Aug	Sep
G	G	G
G	G	G
G	G	G
G	G	G
0	0	0
0	0	0

Mission Center:

Program:

PM

LVI

MM

IE

LSIM

PIM

MAM

MCE

MTE

KSC
Discovery
David Lehman
Mike Gallagher
Bruce Reid
Sarah LeValley
Mark Shugg
Randy Mizelle
Bob Henry

ICD

Jul	Aug	Sep
G	G	G

There are no signed SCNs

There are no SCNs in Review

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

68



John F. Kennedy Space Center

GRAIL - Engineering

Sarah LeValley

LAUNCH SERVICES PROGRAM

	Jul	Aug	Sep
Launch Vehicle	G	G	0
Payload Fairing	G	G	0
First Stage	G	G	0
Second Stage	G	G	0
Third Stage	G	G	0
Payload Attach Fitting	G	G	0
Other	N/A	0	0
Mission Specific	G	G	0
Certification	N/A	0	0
Mission Analysis	G	G	0
ERS/ERB	G	G	0
Launch PAD/GSE	G	G	0
Mission Unique IV&V	G	G	0

REQUIREMENT VERIFICATION STATUS	
NUMBER OF REQUIREMENTS	0
VERIFIED TO DATE	0

LAUNCH PAD / GSE MODS (IF APPLICABLE)
There are none.

MISSION UNIQUE STUDIES (IF APPLICABLE)
There are none.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

69



John F. Kennedy Space Center

GRAIL - Mission ERB Status

Sarah LeValley

LAUNCH SERVICES PROGRAM

There are no Mission ERBs for this mission.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

70



John F. Kennedy Space Center

GRAIL - Vehicle ERB Status

Sarah LeValley

LAUNCH SERVICES PROGRAM

There are no Vehicle ERBs for this mission.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

71



John F. Kennedy Space Center

GRAIL - Launch Site

Mark Shugg

LAUNCH SERVICES PROGRAM

	Jul	Aug	Sep
LSSP	0	G	0

LSSP	Planned	Released
Preliminary	06/08/2010	
Baseline	03/23/2011	

	Jul	Aug	Sep
CUSTOMER INPUTS	0	G	0

DELIVERABLES	Jul	Aug	Sep
Security and Badging	0	G	0
Training and Personnel Cert	0	G	0
Contingency Plans	0	G	0
Safety LSIM	0	G	0
Radiation Control	0	G	0
Operational Plans	0	G	0

UNIQUE REQUIREMENTS

	Jul	Aug	Sep
LAUNCH SITE UNIQUE	0	G	0

PPF	0	G	0
------------	---	---	---

Spacecraft OPS	0	0	0
-----------------------	---	---	---

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

72



John F. Kennedy Space Center

GRAIL Budget Breakdown

Randy Mizelle

LAUNCH SERVICES PROGRAM

The launch service budget includes:

* **Launch Services**

- Standard launch Vehicle Services provided by this contract. This line item is firm fixed price and has no flexibility.

* **Mission Uniques**

- Requirements necessary to customize basic vehicle hardware to meet unique s/c driven requirements.
- Other services directly attributable to the mission.
- Contains some flexibility except when technical risk is affected. Spacecraft requirements are the cost driver.

* **Integrated Services**

- LSP contractor support service (ELVIS, CAPPs, JBOSC, KICs, etc).
- USAF range costs attributable to the mission
- Limited flexibility

* **Payload Processing Facility**

- Government facility: spacecraft customers are required to be processed in a government facility if the mission is planetary or has nuclear requirements
- Commercial facility: all other missions have been directed to process in a commercial facility;
- Contains some budget flexibility. Additional spacecraft cleanliness requirements or hazardous requirements may increase PPF costs.

* **Telemetry**

- Assets required to meet minimum launch vehicle telemetry requirements.
- Includes fixed and deployable ground stations, instrumented aircraft, and ocean assets.
- Limited flexibility requirements are often set late in the integration cycle.

* **Fly Out**

- Costs that each mission in the 19-Pack must incur.
- Long lead material procurement to mitigate risks due to gaps in production and supplier orders.
- Post-production support for labor skill retention, procure, manufacture, store and maintain under configuration control, mission critical spare parts.
- Pad Sustainability costs for SLC-2 and SLC-17.
- No flexibility-contract costs

* **Nuclear**

- RTG/RHU processing
- RTG/RHU databooks and approval
- Limited flexibility

* **Reimbursable**

- Reimbursable FC for transportation, labor, and CMO.

* **Mission Flexibility**

- Portion of the mission budget available for funding additional task assignments, non-standard services or meeting unexpected requirements.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

73



John F. Kennedy Space Center

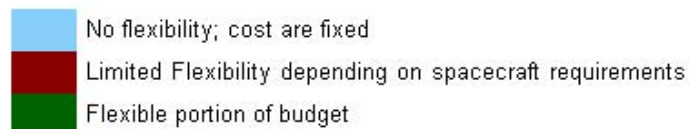
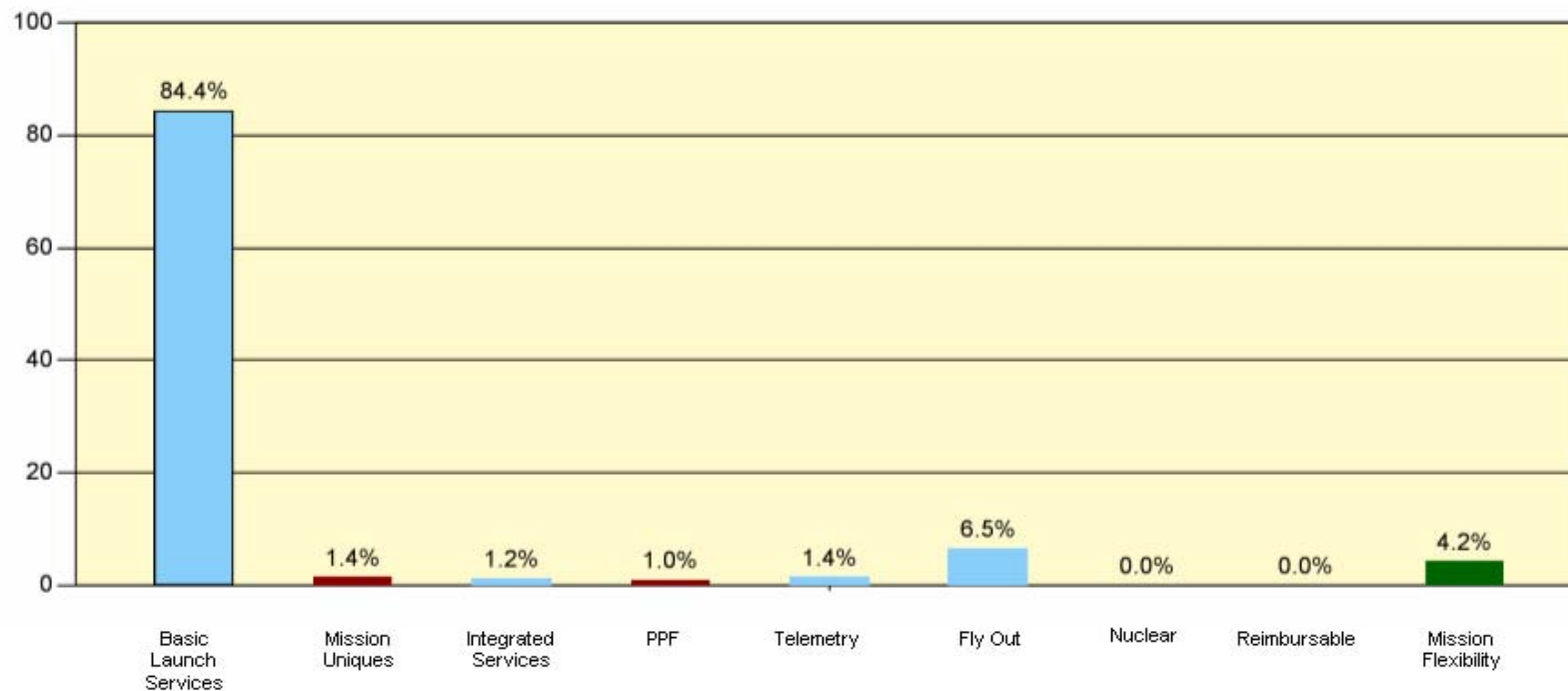
Launch Services Budget Breakdown

GRAIL Mission

Randy Mizelle

LAUNCH SERVICES PROGRAM

% of Total Launch Service Cost - 9 / 2008



Notes:

Mission ATP'd April 25, 2008. Project is currently in early stages; requirements still being developed.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

74



John F. Kennedy Space Center

GRAIL - Business

Randy Mizelle

LAUNCH SERVICES PROGRAM

Budget

Contracts

Jul	Aug	Sep
G	G	G
G	G	G

Milestone	Date
Milestone 1	06/03/2008
Milestone 2	07/02/2008
Milestone 3	09/15/2008
Milestone 4	12/15/2008
Milestone 5	03/15/2009
Milestone 6	06/15/2009
Milestone 7	09/15/2009
Milestone 8	12/15/2009
Milestone 9	03/15/2010
Milestone 10	06/15/2010
Milestone 11	09/15/2010
Milestone 12	12/15/2010
Milestone 13	03/15/2011
Milestone 14	06/15/2011
Milestone 15	09/08/2011

<input type="checkbox"/>	Open Milestone Payment
<input type="checkbox"/>	Paid Milestone

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

75

Contract Status		
Launch Services		
Contract Mod	Number	Description
	0333	Mission Authorization to Proceed (ATP)
	0333	Basic Launch Service and Standard Mission Integration
	0333	NSS 1.1 Heavy Vehicle Upgrade
	0333	NSS 31.2 CCAFS Launch Site Maintenance
	0333	NSS 33.1 Post Production Support - Labor
	0333	Mission Unique Service - 42 Month Integration
	0333	NSS 30.2 Long Lead Material Liquidation
There are no LD Contract Mods		
There are no Task Assignments		
There are no PPF Contract Mods		
There are no Other Contract Mods		
There are no Issues.		



John F. Kennedy Space
Center

GRAIL - Safety and Mission Assurance

Bob Henry

LAUNCH SERVICES PROGRAM

Assurance Verification Areas	Status		Evidence of Completion	Jul	Aug	Sep
	Complete	In Work				
Quality				G	Y	0
Software / Hardware Problems	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Currently re-evaluating the ULA-Boeing's Quality Management System risk.	0	Y	0
Alerts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	0	G	0
Audits/Inspections/Surveillances	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SMA Quality is continuing to follow the corrective actions implemented by Pac Sci from the MDA audit.	0	Y	0
Limited Life Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	0	G	0
Reliability				G	G	0
FMEA/Fishbones/Equivalent	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	0	G	0
Reliability Assessments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	0	G	0
Safety				G	G	0
Requirements Definitions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Payload Safety Introduction Briefing successfully presented.	0	G	0
Range Safety & Mission Flight Rules	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	0	G	0
Licenses/Use Authorizations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	0	G	0
Safety Documentation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	0	G	0
Non-compliances	<input type="checkbox"/>	<input checked="" type="checkbox"/>	None Identified to date.	0	G	0
Contingency Planning	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	0	G	0
Mission Assurance				G	G	0
Lessons Learned	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	0	G	0
First Flight/Mission Unique items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	0	G	0
Test/Qualification/Certification	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	0	G	0
Mission Assurance Assessments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	0	G	0
Risk Management	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	0	G	0

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

77



GRAIL Comm & Telemetry

LAUNCH SERVICES PROGRAM

Communications

Voice Comm
Data Comm
Networks
Video Comm
Timing
RF Comm
LSSP Comm Annex

Jul	Aug	Sep
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

Telemetry

Decommutation Tables
Data Integrity Test
Software Lockdown
Software Inventory
Console Configuration
Console Checkout

Jul	Aug	Sep
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0



John F. Kennedy Space Center

MSL Project Summary

OVERALL MISSION

Jul	Aug	Sep
R	R	0

LAUNCH SERVICES PROGRAM



Mission	MSL
Launch Date	2009/09/15
Launch Vehicle	Atlas V
Launch Period Window	TBR/Time/Instant./dual daily
PPF	PHSF

MISSION MANAGEMENT

Observatory Status
Manifest/Range
Integrated Schedule
ICD
CDRLs (S/C & LSC)

Jul	Aug	Sep
Y	Y	0
G	G	0
G	G	0
G	G	0
G	G	0

LAUNCH SITE

LSSP
Customer Inputs
PPF
Launch Site Unique
Spacecraft OPS

Jul	Aug	Sep
G	G	Y
G	G	G
G	G	G
G	Y	Y
0	0	0

SAFETY & MISSION ASSURANCE

Mission Assurance
Safety
Quality
Reliability

Jul	Aug	Sep
G	G	Y
G	Y	Y
G	G	G
G	G	G

ENGINEERING

Launch Vehicle
Mission Specific
Certification
Mission Analysis
ERS/ERB
Launch PAD/GSE
Mission Unique IV&V

R	R	0
Y	Y	0
N/A	N/A	0
Y	Y	0
Y	Y	0
Y	Y	0
0	0	0

COMM & TELEMETRY

Communications
Telemetry

G	G	G
0	0	0

NUCLEAR

Launch Approval
LV Data Books
Security
Radiation Safety
Facility

G	G	0
G	G	0
G	G	0
G	G	0
G	G	0

BUSINESS

Budget
Contracts

G	Y	R
G	G	G

LEGEND

Proceeding on Plan
Area of Concern
Significant Problem
Not Evaluated
Not Applicable

G
Y
R
0
N/A

DOWNRANGE TELEMETRY

Ground Stations
Deployables
P-3/OTTR

0	0	0
0	0	0
0	0	0

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

79



John F. Kennedy Space Center

MSL - Open/Accepted Risks

LAUNCH SERVICES PROGRAM

		Condition
RYG Trend	RiskID	Consequence
G	M0244	MSL mass growth has significantly decreased launch vehicle performance margins which are used to provide MSL with launch opportunity days and finite launch windows.
		Increased probability of degraded daily launch window and launch period durations for the MSL 2009 launch opportunity.
Y	M0269	Lower Environmental Control System mission unique design has 50% margins at PDR timeframe.
		Inability to provide cooling for the MMRTG would delay mission.
R	M0266	MSL spacecraft GN2 and battery cooling requirements remain undefined.
		LV engineering products and implementation may not meet milestones, or costs may be very high.
Y	M0271	Firm critical ECS power supply fault tolerance requirements are not defined.
		Range Safety may require extensive GSE modifications which would delay MSL mission.
G	M0296	Potential HST launch delay beyond October 2008.
		PHSF facility conflict with HST could impact preparation for MSL's arrival in April 2009.

P
R
C
B

C
F

C
C
C
U
R
R
E
N
C
E

5
91-100%
4
51-90%
3
11-50%
2
6-10%
1
1-5%



1 2 3 4 5
IMPACT

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

80



John F. Kennedy Space Center

MSL - Significant Events

LAUNCH SERVICES PROGRAM

Accomplished	
Current best estimate with uncertainty for MSL mass is now 4052 kg as of 7/15/08. Previous report per June 2006 at 4066 kg. Trending green.	09/15/2006-07/15/2008
MSL verification matrix TIM June 5 in Denver in preparation for ICD being available for signature on June 30.	06/30/2008-06/30/2008
Late delivery of the updated s/c model has caused the MICD schedule to be compacted leading to ICD signature on 6/30/08. (Yellow for S/C deliverables.)	05/15/2008-08/11/2008
GOWG #5	08/06/2008-08/07/2008
Baseline MSL / Atlas V ICD signed.	06/30/08-08/11/08
Lower ECS TIM	08/05/08-08/05/08

Planned	
A MUPDR reconvene is required due to inadequate requirements definition in several areas at MUPDR. MUPDR reconvene will occur is TBD due to changes in s/c requirements and loss of ULA personnel.	09/13/2007-01/31/09
Telecon to discuss JPL waiver to perform random vibe completed on April 14, 2008. Working to close out final set of ULA and KSC questions regarding JPL plan.	04/14/2008-09/30/2008
Spacecraft informed KSC of a significant requirements change in the GN2 Purge and Battery Cooling requirements. Telecons in work to determine new implementation and impact to schedule. Will further delay MUPDR reconvene as issue is resolved.	05/01/2008-01/31/09
MSL MIWG #6 @ KSC	11/19/08-11/19/08
MSL Flight Design TIM @ Denver	09/18/08-09/18/08
MSL Fairing Review @ Oerlikon Space and RUAG (Switzerland)	05/31/09-05/31/09
MSL Landing Site Workshop @ Monrovia, CA	09/15/2008-09/17/2008

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

81



John F. Kennedy Space Center

MSL Mission Management

Wanda Harding

LAUNCH SERVICES PROGRAM

Mission

Launch Date

Orbit Requirement

Launch Vehicle Class

Launch Period Window

PPF

Mass (kg)

PAD

MSL
2009/09/15
C3: 23-11 (max/min) km/sec^2
Atlas V
TBR/Time/Instant./dual daily
PHSF
4100kg
SLC 41



ICD

Jul	Aug	Sep
G	G	0

There are no signed SCNs

SCNS IN REVIEW

SCN # DATE SIGNED

001,
Update
MSL
EICD

Observatory Status

Observatory Status

Schedule

Budget

Deliverables

Testing

ATLO

Instrument

Jul Aug Sep

Y	Y	0
R	R	0
G	Y	R
Y	Y	0
0	G	0
0	0	0
0	0	0

Launch Vehicle Status

Integrated Schedule

CDRLs (S/C & LSC)

Manifest/Range

Ground Stations

Deployables

P-3/OTTR

G	G	0
G	G	0
G	G	0
0	0	0
0	0	0
0	0	0

Mission Center:

Program:

PM

LVI

MM

IE

LSIM

PIM

MAM

MCE

MTE

JPL

Mars Exploration
Program

Richard Cooke

Dave Woerner/Jim
Colvin

Wanda Harding

Larry Craig

John Hueckel

Harold Coleman

Craig Schreiber

Marty Loughheed

Nathan Wood

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

82

002, Correct Max Rand Vibe & Acousti c Env Figures	
003, RF Env @ LC41 & During Trans (PHSF to LC41)	
005, Clean Enclosu re Wall Pass- Throug h Locatio ns	
004, SC RF Suscept ibility	
006, Disposit ion of NASA ICD ERB Action Items	



John F. Kennedy Space Center

MSL - Engineering

Larry Craig

LAUNCH SERVICES PROGRAM

	Jul	Aug	Sep
Launch Vehicle	R	R	0
Payload Fairing	G	G	0
First Stage	G	G	0
Second Stage	G	G	0
Third Stage	N/A	0	0
Payload Attach Fitting	G	G	0
Other	0	0	0
Mission Specific	Y	Y	0
Certification	N/A	N/A	0
Mission Analysis	Y	Y	0
ERS/ERB	Y	Y	0
Launch PAD/GSE	Y	Y	0
Mission Unique IV&V	0	0	0

REQUIREMENT VERIFICATION STATUS	
NUMBER OF REQUIREMENTS	0
VERIFIED TO DATE	0

LAUNCH PAD / GSE MODS (IF APPLICABLE)
Lower PLF ECS Access Platforms VIF Level 5 Structural Support Clean Enclosures GN2 Purge Upgrades Aeroshell ECS Pad Pneumatic GN2 Flow Path Redundancy

MISSION UNIQUE STUDIES (IF APPLICABLE)
There are none.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

84



John F. Kennedy Space Center

MSL - Mission ERB Status

Larry Craig

LAUNCH SERVICES PROGRAM

R/Y/G	ERS #	TITLE	ERB Req?		Board Held?			Closure		
			Y	N	Y	N	N/A	AI	ENG.	OCE
0	05-354	MSL IRD Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
0	06-370	MSL Mission Unique Requirements Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	06-371	MSL Mission Peculiar Design Review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	06-372	MSL Mission Unique PDR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	06-373	MSL Mission Unique CDR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

85



John F. Kennedy Space Center

MSL - Vehicle ERB Status

Larry Craig

LAUNCH SERVICES PROGRAM

R/Y/G	ERS #	TITLE	ERB Req?		Board Held?			Closure		
			Y	N	Y	N	N/A	AI	ENG.	OCE
0	06-305	RP Tank Long Term Redesign	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	ERS-07-265	First Flight of Basotect/MA100 foam FAP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

86



John F. Kennedy Space Center

MSL - Launch Site

John Hueckel

LAUNCH SERVICES PROGRAM

	Jul	Aug	Sep
LSSP	G	G	Y

LSSP	Planned	Released
Preliminary	09/10/2008	
Baseline	01/15/2009	

	Jul	Aug	Sep
CUSTOMER INPUTS	G	G	G

	Jul	Aug	Sep
DELIVERABLES			
Security and Badging	G	G	G
Training and Personnel Cert	G	G	G
Contingency Plans	G	G	G
Safety LSIM	G	G	G
Radiation Control	G	G	G
Operational Plans	G	G	G

UNIQUE REQUIREMENTS

LAUNCH SITE UNIQUE

Planetary Protection
Verification laboratory

Jul	Aug	Sep
G	Y	Y
Y	Y	Y

PPF

Trailer for Spin operations

G	G	G
G	G	G

Spacecraft OPS

0	0	0
---	---	---

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

87



John F. Kennedy Space Center

MSL Budget Breakdown

Harold Coleman

LAUNCH SERVICES PROGRAM

The launch service budget includes:

* **Launch Services**

- Standard launch Vehicle Services provided by this contract. This line item is firm fixed price and has no flexibility.

* **Mission Uniques**

- Requirements necessary to customize basic vehicle hardware to meet unique s/c driven requirements.
- Other services directly attributable to the mission.
- Contains some flexibility except when technical risk is affected. Spacecraft requirements are the cost driver.

* **Integrated Services**

- LSP contractor support service (ELVIS, CAPPs, JBOSC, KICs, etc).
- USAF range costs attributable to the mission
- Limited flexibility

* **Payload Processing Facility**

- Government facility: spacecraft customers are required to be processed in a government facility if the mission is planetary or has nuclear requirements
- Commercial facility: all other missions have been directed to process in a commercial facility;
- Contains some budget flexibility. Additional spacecraft cleanliness requirements or hazardous requirements may increase PPF costs.

* **Telemetry**

- Assets required to meet minimum launch vehicle telemetry requirements.
- Includes fixed and deployable ground stations, instrumented aircraft, and ocean assets.
- Limited flexibility requirements are often set late in the integration cycle.

* **Fly Out**

- Costs that each mission in the 19-Pack must incur.
- Long lead material procurement to mitigate risks due to gaps in production and supplier orders.
- Post-production support for labor skill retention, procure, manufacture, store and maintain under configuration control, mission critical spare parts.
- Pad Sustainability costs for SLC-2 and SLC-17.
- No flexibility-contract costs

* **Nuclear**

- RTG/RHU processing
- RTG/RHU databooks and approval
- Limited flexibility

* **Reimbursable**

- Reimbursable FC for transportation, labor, and CMO.

* **Mission Flexibility**

- Portion of the mission budget available for funding additional task assignments, non-standard services or meeting unexpected requirements.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified



John F. Kennedy Space Center

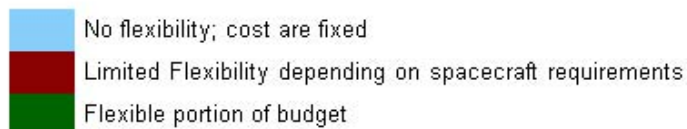
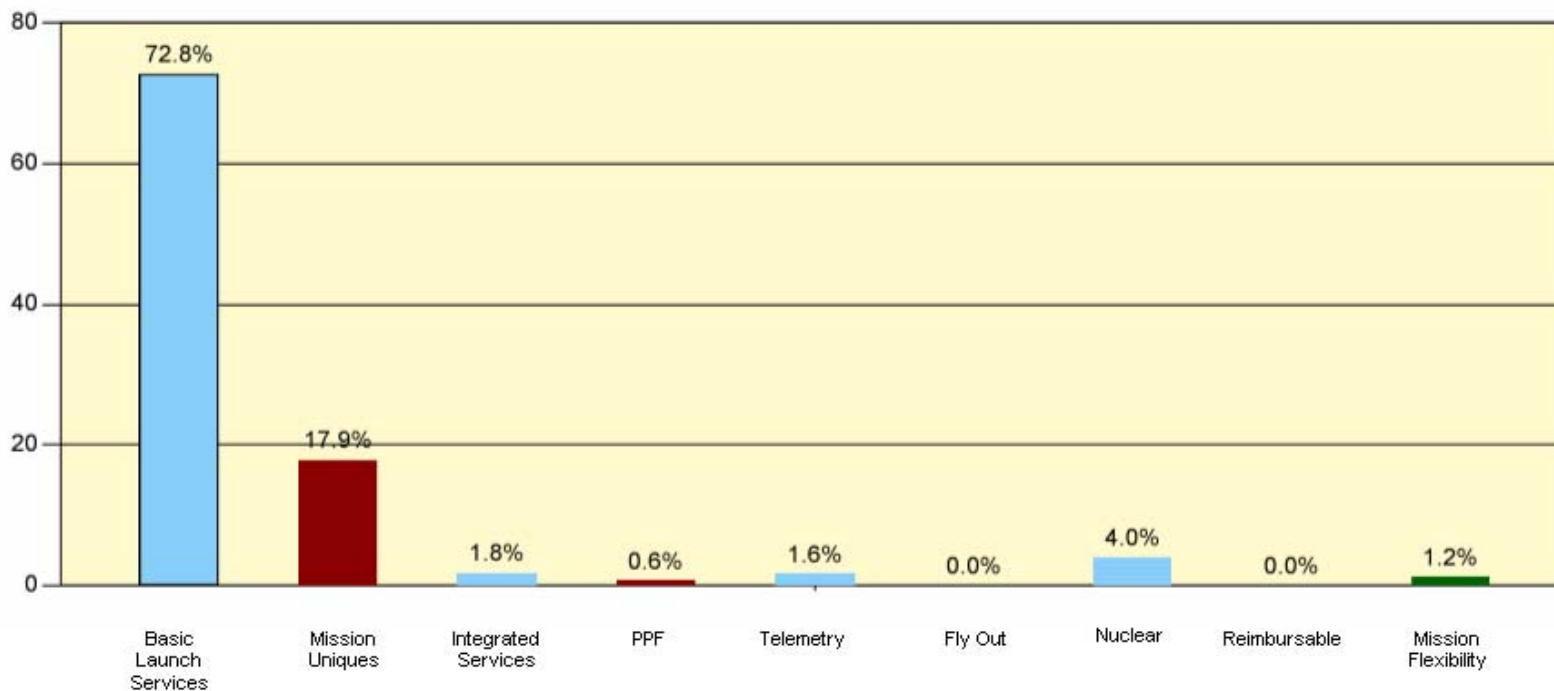
Launch Services Budget Breakdown

MSL Mission

Harold Coleman

LAUNCH SERVICES PROGRAM

% of Total Launch Service Cost - 9 / 2008



Notes:

Variance: No Change.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

89



John F. Kennedy Space Center

MSL - Business

Harold Coleman

LAUNCH SERVICES PROGRAM

Budget

Contracts

Jul	Aug	Sep
G	Y	R
G	G	G

Milestone	Date
Milestone 1	06/30/06
Milestone 2	09/20/06
Milestone 3	04/02/07
Milestone 4	07/24/2007
Milestone 5	10/11/2007
Milestone 6	01/16/08
Milestone 7	02/19/08
Milestone 8	10/01/2008
Milestone 9	11/15/2008
Milestone 10	02/15/09
Milestone 11	05/01/09
Milestone 12	09/15/09

<input type="checkbox"/>	Open Milestone Payment
<input type="checkbox"/>	Paid Milestone

Contract Status		
Launch Services		
Contract Mod	Number	Description
	NLSL-083	ATP Mission
	NLSL-091	S/C Mass & Backup Launch opportunity revisions, ATP of Mission Unique Services: 3- Interleaved Telemetry, 11- Mission Unique Flight Design and Analyses, 12 - External Access Platforms, 13 - VIF Level 5 Structural Support & Platform configuration, 14 - CI
	NLSL-094	ATP of Mission Unique Services 8.0 - Diode Assemblies & 9.0 - Enhanced PLA Cleaning & UV Inspection
	NLSL-098	3% Volume Buy Discount Application
	NLSL-120	Payment schedule and adjust the milestone completion criteria for the MSL Mission CLIN 7.

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

90

There are no LD Contract Mods				
Task Assignments	Number	Description	Completion Date	Invoice Paid Date
	NLSB-199	Pre-ATP Trajectory	Cancelled	
	NLSL-053	Pre-ATP Trajectory	4/1/06	4/24/06
	NLSL-054	AV NEPA & Launch Approval SAR Databook support	12/22/2006	1/18/07
	NLSL-060	MUS 11 Pre-Authorization	12/31/2006	2/12/07
	NLSL-073	Separation Pointing Accuracy Evaluation	5/30/07	6/28/07
	NLSL-074	PDLC Interface Data Output Requests	4/30/07	05/16/2007
	NLSL-079	Early Integrated Thermal Analysis	10/31/2007	11/26/2007
	NLSL-080	28 Volt Power	07/30/2008	
	NLSL-081	Final Design Load Cycle (FDLC) Interface Data Output Requests	11/30/2007	12/03/2007
	NLSL-083	PECS As Backup to VIF ECS Feasibility Assessment	12/15/2007	02/15/2008
	NLSL-086	LC41 Environmental Control System (ECS) GN2 System Redundancy Addition Feasibility Assessment	02/15/2008	03/17/2008
	NLSL-090	5M PLF Planetary Protection Materials and Processing Assessment for the MSL Mission	05/30/2008	06/23/2008
	NLSL-091	GN2 Instrument Purge and Battery Cooling Service Study for the MSL Mission.	10/31/2008	
	NLSL-092	Additional Lightning Suppression Assembly (LSA) and LSA Jumpers	09/30/2008	
	NLSL-093	5m PLF Fairing Acoustic Protection (FAP) Vibration Test Bioassay Sampling Proposal Preparation	02/21/2008	03/06/2008
	NLSL-097	Modifications to +X Payload Fairing Door Mock-Up.	05/30/2008	06/11/2008
	NLSL-110	PECS As Backup to VIF ECS Implementation	10/04/2009	
	NLSL-112	MSL CPWSR2A Additional Launch Days	03/31/2009	
There are no PPF Contract Mods				
There are no Other Contract Mods				

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

91

	Issues
0	This mission is designated as planetary and is subject to equitable adjustment, therefore grace days do not apply.
0	As part of the previously agreed to deferment of FY08 MSL funding, LSP is working funding issues with HQ and JPL in support of the MSL mission for launch service milestone payments required in October 2008



John F. Kennedy Space
Center

MSL - Safety and Mission Assurance

Craig Schreiber

LAUNCH SERVICES PROGRAM

Assurance Verification Areas	Status		Evidence of Completion			
	Complete	In Work		Jul	Aug	Sep
Quality				G	G	G
Software / Hardware Problems	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Monitoring issues associated with reallocation of booster tank due to cracked isogrid. Evaluating implications of clamp band manufacturing defect.	G	G	G
Alerts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues	G	G	G
Audits/Inspections/Surveillances	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues or concerns	G	G	G
Limited Life Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No issues	G	G	G
Reliability				G	G	G
FMEA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	G	G	G
Reliability Assessments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	G	G	G
Safety				G	Y	Y
Requirements Definitions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tailoring in work.	G	G	G
Range Safety & Mission Flight Rules	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	G	G	G
Licenses/Use Authorizations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	G	G	G
Safety Documentation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Phase II S/C MSPSP comments have been submitted and are in work.	G	G	G
Non-compliances	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Draft propulsion system variances in work.	G	Y	Y
Contingency Planning	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	G	G	G
Mission Assurance				G	G	Y
Lessons Learned	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	G	G	G
First Flight/Mission Unique items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Multiple mission unique items needing review.	G	G	G
Test/Qualification/Certification	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues	G	G	G
Mission Assurance Assessments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	FIW/OIV issue. Evaluating booster tank swap. Fleet concerns exist over RD-180 Mixture ratio valve that failed on AV017 and TVC actuator that performed an uncommanded movement on AV014.	G	G	Y
Risk Management	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No significant issues.	G	G	G

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

93



MSL Comm & Telemetry

Marty Loughheed and Nathan Wood

LAUNCH SERVICES PROGRAM

Communications

Voice Comm
Data Comm
Networks
Video Comm
Timing
RF Comm
LSSP Comm Annex

Jul	Aug	Sep
G	G	G
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

Telemetry

Decommuration Tables
Data Integrity Test
Software Lockdown
Software Inventory
Console Configuration
Console Checkout

Jul	Aug	Sep
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0



John F. Kennedy Space Center

MSL Nuclear

John Giles

LAUNCH SERVICES PROGRAM

	Jul	Aug	Sep
Launch Approval	G	G	0
LV Data Books	G	G	0
Security	G	G	0
Radiation Safety	G	G	0
Facility	G	G	0

September 18, 2008

LSP Internal Use Only
Sensitive But Unclassified

95